

ENGLISH READER,

No. V.

THE
ENGLISH READER;

CONTAINING

A Selection of Pieces in Prose,

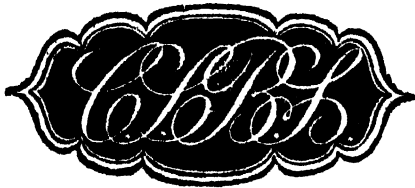
SUITED TO

THE CAPACITIES OF INDIAN YOUTH,

AND ADAPTED TO

IMPROVE THE YOUNGER CLASSES OF LEARNERS IN READING, BY A
PROGRESSIVE ARRANGEMENT OF THE LESSONS.

No. V.



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ENGLISH READER.

No. V.

CHAPTER I. NARRATIVE PIECES.

LESSON 1.—*The Hill of Science.*

IN that season of the year when the serenity of the sky, the various fruits which cover the ground, the discoloured foliage of the trees, and all the sweet but fading graces of inspiring autumn, open the mind to benevolence, and dispose it for contemplation, I was wandering in a beautiful and romantic country, till curiosity began to give way to weariness; and I sat down on the fragment of a rock overgrown with moss, where the rustling of the falling leaves, the dashing of waters, and the hum of the distant city, soothed my mind into the most perfect tranquillity, and sleep insensibly stole upon me, as I was indulging the agreeable reveries which the objects around me naturally inspired.

I immediately found myself in a vast extending plain, in the middle of which arose a mountain higher than I had before any conception of. It was covered with a multitude of people, chiefly youth; many of whom pressed forwards with the liveliest expressions of ardour in their countenance, though the way was in many places steep and difficult. I observed, that those who

had but just begun to climb the hill thought themselves not far from the top ; but as they proceeded new hills were continually rising to their view, and the summit of the highest they could before discern seemed but the foot of another, till the mountain at length appeared to lose itself in the clouds. As I was gazing on these things with astonishment, my good genius suddenly appeared. "The mountain before thee," said he, "is the Hill of Science. On the top is the temple of Truth, whose head is above the clouds, and a veil of pure light covers her face. Observe the progress of her votaries ; be silent and attentive."

I saw that the only regular approach to the mountain was by a gate, called the gate of Languages. It was kept by a woman of a pensive and thoughtful appearance, whose lips were continually moving, as though she repeated something to herself. Her name was Memory. On entering this first enclosure, I was stunned with a confused murmur of jarring voices and dissonant sounds, which increased upon me to such a degree that I was utterly confounded.

After contemplating these things, I turned my eyes towards the top of the mountain, where the air was always pure and exhilarating, the path shaded with laurels and other evergreens, and the effulgence which beamed from the face of the goddess seemed to shed a glory round her votaries. "Happy," said I, "are they who are permitted to ascend the mountain!"—But while I was pronouncing this exclamation with uncommon ardour, I saw standing beside me a form of diviner features and a more benign radiance. "Happier," said she, "are those whom Virtue conducts to the mansions of Content!" "What," said I, "does Vir-

tue then reside in the vale?" "I am found," said she, "in the vale, and I illuminate the mountain; I cheer the cottager at his toil, and inspire the sage at his meditation. I mingle in the crowd of cities, and bless the hermit in his cell. I have a temple in every heart that owns my influence; and to him that wishes for me I am already present. Science may raise you to eminence, but I alone can guide you to felicity." While the goddess was thus speaking, I stretched out my arms towards her with a vehemence which broke my slumbers. The chill dews were falling around me, and the shades of evening stretched over the landscape. I hastened homeward, and resigned the night to silence and meditation.

LESSON 2.—*Aërial Castle-building.*

Alnaschar was a very idle fellow, that never would set his hand to any business during his father's life. When his father died, he left him to the value of a hundred drachms in Persian money. Alnaschar, in order to make the best of it, laid it out in glasses, bottles, and the finest earthenware. These he piled up in a large open basket, and having made choice of a very little shop, placed the basket at his feet, and leaned his back against the wall, in expectation of customers. As he sat in this posture, with his eyes upon the basket, he fell into a most amusing train of thought, and was overheard by one of the neighbours, as he talked to himself in the following manner: "This basket," says he, "cost me at the wholesale merchant's a hundred drachms, which is all I have in the world. I shall quickly make two hundred of it, by selling it in retail. These two hundred drachms will in a very little time

rise to four hundred, which of course will amount in time to four thousand. Four thousand drachms cannot fail of making eight thousand. As soon as by this means I am master of ten thousand, I will lay aside my trade as a glassman, and turn jeweller. I shall then deal in diamonds, pearls, and all sorts of rich stones.

“When I have got together as much wealth as I desire, I will make a purchase of the finest house I can find, with lands, slaves, eunuchs, and horses. I shall then begin to enjoy myself, and make a noise in the world. I will not, however, stop there, but continue my traffic till I have got together a hundred thousand drachms. When I have thus made myself master of a hundred thousand drachms, I shall naturally set myself on the footing of a prince, and will demand the grand Vizir’s daughter in marriage. After having represented to that minister the information which I have received of the beauty, wit, discretion, and other high qualities, which his daughter possesses, I will let him know, at the same time, that it is my intention to make him a present of a thousand pieces of gold on our marriage night. As soon as I have married the grand Vizir’s daughter, I will buy her ten black eunuchs, the youngest and the best that can be got for money. I must afterwards make my father-in-law a visit with a great train and equipage: and, when he places me at his right hand, which he will do of course, if it be only to honour his daughter, I will give him the thousand pieces of gold which I promised him; and afterwards, to his great surprise, I will present him with another purse of the same value, with some short speech; as, *Sir, you see I am a man of my word: I always give more than I promise.*

“ When I have brought the princess to my house, I shall take particular care to breed in her a due respect for me, before I give the reins to love and dalliance. To this end I shall confine her to her own apartment, make her a short visit, and talk but little to her. Her women will represent to me that she is inconsolable by reason of my unkindness, and beg me with tears to caress her, and let her sit down by me ; but I will still remain inexorable. Her mother will then come and bring her daughter to me, as I am seated on my sofa. The daughter, with tears in her eyes, will fling herself at my feet, and beg of me to receive her into my favour. Then will I, to imprint in her a thorough veneration for my person, draw up my leg, and spurn her from me with my foot, in such a manner that she shall fall down several paces from the sofa.”

Alnaschar was entirely swallowed up in this chimerical vision, and could not forbear acting with his foot what he had in his thoughts ; so that unluckily striking his basket of brittle ware, which was the foundation of all his grandeur, he kicked his glasses to a great distance from him into the street, and broke them into ten thousand pieces.

This is a ridicule upon the foolish but common vanity of building castles in the air, and idly wasting that time in empty flattering schemes which might have been usefully employed in attending to our proper business.

LESSON 3.—*Death of General Washington.*

On Friday, the 13th of December, 1799, while attending to some improvements upon his estate, he was exposed to a slight rain, by which his neck and hair became wet. Unapprehensive of danger from this cir-

cumstance, he passed the afternoon in his usual manner ; but in the night he was seized with an inflammatory affection of the windpipe. The disease commenced with a violent ague, accompanied with some pain in the upper and fore part of the throat, a sense of stricture in the same part, a cough, and a difficult rather than a painful deglutition, which were soon succeeded by a fever, and a quick and laborious respiration.

Believing blood-letting to be necessary, he procured a bleeder, who took from his arm twelve or fourteen ounces of blood ; but he would not permit a messenger to be despatched for his family physician until the appearance of day. About eleven in the morning Dr. Craik arrived ; and perceiving the extreme danger of the case, requested that two consulting physicians should be immediately sent for. The utmost exertions of medical skill were applied in vain. The powers of life were manifestly yielding to the force of the disorder : speaking, which was painful from the beginning, became almost impracticable ; respiration became more and more contracted and imperfect ; until half-past eleven on Saturday night, when, retaining the full possession of his intellect, he expired without a struggle.

Believing, at the commencement of his complaint, as well as through every succeeding stage of it, that its conclusion would be mortal, he submitted to the exertions made for his recovery, rather as a duty than from any expectation of their efficacy. Some hours before his death, after repeated efforts to be understood, he succeeded in expressing a desire that he might be permitted to die without interruption. After it became impossible to get anything down his throat, he undressed himself, and went to bed, there to die. To his friend and phy-

sician, Dr. Craik, who sat on his bed, and took his head in his lap, he said with difficulty, " Doctor, I am dying, and have been dying for a long time ; but I am not afraid to die."

During the short period of his illness, he economized his time in arranging, with the utmost serenity, those few concerns which required his attention, and anticipated his approaching dissolution with every demonstration of that equanimity for which his life was so uniformly and singularly conspicuous.

The deep and wide-spreading grief occasioned by this melancholy event, assembled a great concourse of people, for the purpose of paying the last tribute of respect to the first of Americans. On Wednesday, the 18th of December, attended by military honours and the ceremonies of religion, his body was deposited in the family vault at Mount Vernon.

So short was his illness, that at the seat of government the intelligence of his death preceded that of his indisposition. It was first communicated by a passenger in the stage to an acquaintance whom he met in the street, and the report quickly reached the house of representatives, which was then in session. The utmost dismay and affliction were displayed for a few minutes, after which a member stated in his place the melancholy information which had been received. This information, he said, was not certain ; but there was too much reason to believe it true.

" After receiving intelligence," he added, " of a national calamity so heavy and afflicting, the house of representatives can be but ill fitted for public business." He therefore moved an adjournment. Both houses adjourned until the next day.

On the succeeding day, as soon as the orders were read, the same member addressed the chair; and afterwards offered the following resolutions:—

“Resolved, that this house will wait upon the president, in condolence of this mournful event.

“Resolved, that the speaker’s chair be shrouded with black; and that the members and officers of the house wear black during the session.

“Resolved, that a committee, in conjunction with one from the senate, be appointed to consider on the most suitable manner of paying honour to the memory of the man first in war, first in peace, and first in the hearts of his fellow citizens.”

LESSON 4.—*The Death of Sir John Moore.*

Sir John Moore, while earnestly watching the result of the fight about the village of Elvina, was struck on the left breast by a cannon shot: the shock threw him from his horse with violence; he rose again in a sitting posture, his countenance unchanged, and his stedfast eye still fixed upon the regiments engaged in his front: no sigh betrayed a sensation of pain; but in a few moments, when he was satisfied that the troops were gaining ground, his countenance brightened, and he suffered himself to be taken to the rear. Then was seen the dreadful nature of his hurt: the shoulder was shattered to pieces, the arm was hanging by a piece of skin, the ribs over the heart broken and bared of flesh, and the muscles of the breast torn into long strips, which were interlaced by their recoil from the dragging of the shot. As the soldiers placed him in a blanket his sword got entangled, and the hilt entered the wound. Captain Hardinge, a staff officer, who was near, attempted to take it off; but

the dying man stopped him, saying, "*It is as well, as it is; I had rather it should go out of the field with me.*" And in that manner, so becoming to a soldier, Moore was borne from the fight.

From the spot where he fell, the General who had conducted it was carried to the town by a party of soldiers. The blood flowed fast, and the torture of his wound increased; but such was the unshaken firmness of his mind, that those about him, judging from the resolution of his countenance that his hurt was not mortal, expressed a hope of his recovery. Hearing this, he looked stedfastly at the injury for a moment, and then said, "*No, I feel that to be impossible.*" Several times he caused his attendants to stop and turn him round, that he might behold the field of battle; and when the firing indicated the advance of the British, he discovered his satisfaction, and permitted the bearers to proceed. Being brought to his lodgings the surgeons examined his wound, but there was no hope; the pain increased, and he spoke with great difficulty. At intervals he asked if the French were beaten; and addressing his old friend Colonel Anderson, he said, "*You know that I always wished to die this way.*" Again he asked if the enemy were defeated; and being told they were, observed, "*It is a great satisfaction to me to know we have beaten the French.*" His countenance continued firm, and his thoughts clear; once only, when he spoke of his mother, he became agitated. He inquired after the safety of his friends, and the officers of his staff; and he did not even in this moment forget to recommend those whose merit had given them claims to promotion. His strength was failing fast, and life was just extinct, when, with an unsubdued spirit, as if anticipating the baseness

of his posthumous calumniators, he exclaimed, "*I hope the people of England will be satisfied ! I hope my country will do me justice !*" The battle was scarcely ended, when his corpse, wrapped in a military cloak, was interred by the officers of his staff in the citadel of Corunna. The guns of the enemy paid his funeral honours ; and Soult, with a noble feeling of respect for his valour, raised a monument to his memory.

Thus ended the career of Sir John Moore, a man whose uncommon capacity was sustained by the purest virtue, and governed by a disinterested patriotism more in keeping with the primitive than the luxurious age of a great nation. His tall graceful person, his dark searching eyes, strongly defined forehead, and singularly expressive mouth, indicated a noble disposition and a refined understanding. The lofty sentiments of honour habitual to his mind, adorned by a subtle playful wit, gave him in conversation an ascendancy that he could well preserve by the decisive vigour of his actions. He maintained the right with a vehemence bordering upon fierceness, and every important transaction in which he was engaged increased his reputation for talent, and confirmed his character as a stern enemy to vice, a steadfast friend to merit, a just and faithful servant of his country. The honest loved him, the dishonest feared him ; for while he lived he did not shun, but scorned and spurned the base, and, with characteristic propriety, they spurned at him when he was dead.

A soldier from his earliest youth, he thirsted for the honours of his profession ; and feeling that he was worthy to lead a British army, hailed the fortune that placed him at the head of the troops destined for Spain. The stream of time passed rapidly, and the inspiring hopes of triumph

disappeared, but the austerer glory of suffering remained : With a firm heart he accepted that gift of a severe fate, and, confiding in the strength of his genius, disregarded the clamours of presumptuous ignorance; opposing sound military views to the foolish projects so insolently thrust upon him by the ambassador, he conducted a long and arduous retreat with sagacity, intelligence, and fortitude. No insult could disturb, no falsehood deceive him, no remonstrance shake his determination ; fortune frowned without subduing his constancy ; death struck, and the spirit of the man remained unbroken, when his shattered body scarcely afforded it a habitation. Having done all that was just towards others, he remembered what was due to himself. . Neither the shock of the mortal blow, nor the lingering hours of acute pain which preceded his dissolution, could quell the pride of his gallant heart, or lower the dignified feeling with which (conscious of merit) he asserted his right to the gratitude of the country he had served so truly.

If glory be a distinction, for such a man death is not a leveller !

LESSON 5.—*Benevolence ; an Eastern Tale.*

Benevolence is the most amiable characteristic of humanity. It may be called, with propriety, a godlike virtue. Sublime in its principles, it is productive of the most ennobling effects ; adding grace to the dignity of religion, and giving its possessor attractions worthy of an angel. Without this property, what are the most exalted attainments of wisdom, honour, or wealth ? They make a show and a sound, but where is their real value ? It is benevolence that turns them into a channel of pure utility, causing them to flow wherever they are

most wanted for ornamenting and fructifying the great garden of mankind. For the truly benevolent man suffers his desires to rest in nothing short of the universal good of his fellow creatures ; this leads him to promote their welfare as much as lies within the compass of his ability : and rich indeed is the reward which he reaps, in the unsullied satisfaction resulting from the practice of such virtue. I will endeavour to impress this lesson by the following tale :—

Abdomar lived upon the banks of the Tigris, and was early instructed in the precepts of his religion, which he was taught to venerate in thought, word, and action. His soul glowed with the purest benevolence for all around him : not only his own species, but every part of the creation, claimed a share in his tender regard. Near his dwelling had grown, for more than a century, a vast and thick wood : into this retreat he often withdrew, to enjoy the contemplative delights of solitude, and to worship the God of nature in the outward temple of his works. Abdomar was one evening seated in one of the green recesses which beautifully embellished the borders of this wood, admiring the blue arch of the heavens, gloriously tinged with the last beam of sunset ; and was tempted to continue there, until night kindled up her myriads of lamps in the ethereal canopy. He now watched the moon, as she aspired towards her zenith amid the splendid multitude, and appeared majestically sailing through the light clouds that drew a momentary veil across her silvery orb. All was silence, save the soothing whisper of the breeze ; for the genius of repose had spread his pinions over the face of nature. Tranquillity had taken possession of the soul of Abdomar, and his heart warmed with gratitude to God, who

had thus given him an interest in the sublimities of the creation ; when suddenly he was roused from these meditations by a rustling among the bushes near his seat. He arose to ascertain the occasion of this noise, and immediately beheld the figure of a man, upon whose countenance the hand of affliction had traced premature wrinkles : a garment of coarse linen enfolded his limbs ; his head was uncovered to the dew of night ; his arms rested upon his bosom, while he anxiously bent his eyes towards the earth, as if seeking something, yet despairing to find it. Abdomar surveyed him with concern. " Stranger," said he, " may I ask whence cometh thy grief ; and why hath the angel of tribulation laid his hand upon thee ? Is there none amongst the sons of Adam who can succour thee ? If there be a balsam for the wound of thy bosom, tell me where, I entreat thee, and my exertions shall aid thee in procuring it."

The stranger lifted his eyes from the earth, and gazing for a moment, thus replied to the kind inquiries of the youth : " Young man, whoever thou art, thou art one of the few among the sons of Adam whose soul has been formed by the genius of virtue : for I see stamped upon thy countenance the grace of the divine Original. Listen then, and I will tell without reserve. My name is Mirvan. I was left by my father, who was a merchant of Bussora, to the direction of his concerns, on the winding-up of which, I found myself possessed of property to a large amount ; and as I had always considered the enjoyments of retirement to be superior to those of mixed society and the bustle of commercial life, I disposed of all my effects in the city, and betook myself to a small house and garden at some distance. I pursued a system of the most virtuous economy in

living, for I had long contemned luxury as the bane of human nature ; and being shocked at the extravagance which I daily beheld amongst my neighbours, I buried the greater part of my riches in the earth, that they might not tempt me to commit the like evil. I was a constant frequenter of the mosques, and received the lessons of the prophet with reverence ; but though I endeavoured to keep the path of virtue, I was not respected by any ; every one treated me ungenerously ; and I was at length driven by the asperity of their conduct to fly all intercourse with mankind. Three suns have now nearly completed their course since I have lived solitary ; my food, fruit and herbs from the wood, and my drink, water from the rock, in whose rugged sides I have found a habitation, if not more convenient, at least more undisturbed than any I have before occupied. As for my riches, they must now moulder away in the earth.” Here the stranger paused, and heaved a sigh that bespoke him yet unacquainted with happiness. “Mirvan,” replied Abdomar, “listen to the voice of instruction, and be wise. Thou wast not acquainted with the right use of riches, else they had been thy blessing instead of thy curse ; they would have made thee happy, as now they have made thee miserable. Thou wast just in deprecating extravagance, but unjust in not administering what pertained to thy own comfort and the necessities of others. Had thy hand dispensed a share of thy superfluities amongst the needy, then had their blessings been upon thy head ; hadst thou stretched out thy hand to the unhappy, and brought the forsaken into thy house, then had thy heart truly rejoiced in its abundance. It is true, that man has no occasion for more than will supply his wants ; but never did Alla

dispense his gifts to be neglected, though he frowns on the ingrate who abuses them. Mirvan, thou hast mistaken the true path of virtue. Go, return to thy dwelling amongst men ; let the spade dig up thy now useless treasure, promote by it the happiness of others ; so shall the angel of peace come to thy dwelling, and the blessing of the Most High shall descend upon thy breast." Mirvan bowed his head ; he felt his heart touched by the force of these precepts, thanked his instructor, and retired. Scarcely had the sun revisited the hemisphere, when the wanderer arose and returned towards Bussora. A few days' journey brought him to his treasure, which once more saw the light, and became of value in the eyes of his master, who now opened his doors to the unhappy, and spread his table for the needy. Of him the afflicted expected consolation, and received it : the oppressed looked to him as a redresser of their grievances, and their hopes were not disappointed. Day after day increased the usefulness and the happiness of Mirvan. He saw the good he was capable of bestowing, and adored the hand whose bounty had supplied him with the means ; nor did he forget who first taught him the attainment of such true pleasure, but lived and died, blessing the counsel of Abdomar.

LESSON 6.—*Generous Revenge.*

At the period when the republic of Genoa was divided between the factions of the nobles and the people, Uberto, a man of low origin, but of an elevated mind and superior talents, and enriched by commerce, having raised himself to be the head of a popular party, maintained for a considerable time a democratical form of government.

The nobles at length uniting all their efforts, succeeded in subverting this state of things, and regained their former supremacy. They used their victory with considerable rigour ; and, in particular, having imprisoned Uberto, proceeded against him as a traitor, and thought they displayed sufficient lenity in passing a sentence upon him of perpetual banishment, and the confiscation of all his property. Adorno, who was then possessed of the first magistracy, a man haughty in temper, and proud of ancient nobility, though otherwise not void of generous sentiments, in pronouncing this sentence on Uberto, aggravated its severity by the insolent terms in which he conveyed it. “ You, (said he,)—you, the son of a base mechanic, who have dared to trample upon the nobles of Genoa,—you, by their clemency, are only doomed to shrink again into the nothingness whence you sprang.”

Uberto received his condemnation with respectful submission to the court ; yet, stung by the manner in which it was expressed, he could not forbear saying to Adorno, “ that perhaps he might hereafter find cause to repent the language he had used to a man capable of sentiments as elevated as his own.” He then made his obeisance and retired ; and, after taking leave of his friends, embarked in a vessel bound for Naples, and quitted his native country without a tear.

He collected some debts due to him in the Neapolitan dominions, and with the wreck of his fortune went to settle on one of the islands in the Archipelago belonging to the state of Venice. Here his industry and capacity in mercantile pursuits raised him in a course of years to greater wealth than he had possessed in his most prosperous days at Genoa ; and his reputation for honour and generosity equalled his fortune.

Among other places which he frequently visited as a merchant was the city of Tunis, at that time in friendship with the Venetians, though hostile to most of the other Italian states, and especially to Genoa. As Uberto was on a visit to one of the first men of that place, at his country house, he saw a young Christian slave at work in irons, whose appearance excited his attention. The youth seemed oppressed with labour, to which his delicate frame had not been accustomed; and while he leaned at intervals upon the instrument with which he was working, a sigh burst from his full heart, and a tear stole down his cheek. Uberto eyed him with tender compassion, and addressed him in Italian. The youth eagerly caught the sounds of his native tongue, and replying to his inquiries, informed him he was a Genoese. "And what is your name, young man? (said Uberto.) You need not be afraid of confessing to me your birth and condition."

"Alas! (he answered,) I fear my captors already suspect enough to demand a large ransom. My father is indeed one of the first men in Genoa. His name is Adorno, and I am his only son. "Adorno!" Uberto checked himself from uttering more aloud, but to himself he cried, "Thank Heaven! then I shall be nobly revenged."

He took leave of the youth, and immediately went to inquire after the corsair captain who claimed a right in young Adorno, and having found him, demanded the price of his ransom. He learned that he was considered as a captive of value, and that less than two thousand crowns would not be accepted. Uberto paid the sum; and causing his servant to follow him with a horse and a complete suit of handsome apparel, he returned to the

youth, who was working as before, and told him he was free. With his own hands he took off his fetters, and helped him to change his dress, and mount on horseback. The youth was tempted to think it all a dream, and the flutter of emotion almost deprived him of the power of returning thanks to his generous benefactor. He was soon however convinced of the reality of his good fortune, by sharing the lodging and table of Uberto.

After a stay of some days at Tunis, to dispatch the remainder of his business, Uberto departed homewards, accompanied by young Adorno, who by his pleasing manners had highly ingratiated himself with him. Uberto kept him some time at his house, treating him with all the respect and affection he could have shown for the son of his dearest friend. At length, having a safe opportunity of sending him to Genoa, he gave him a faithful servant for a conductor, fitted him out with every convenience, slipped a purse of gold into one hand and a letter into the other, and thus addressed him :—

“My dear youth, I could with much pleasure detain you longer in my humble mansion, but I feel your impatience to revisit your friends ; and I am sensible that it would be cruelty to deprive them longer than necessary of the joy they will receive in recovering you. Deign to accept this provision for your voyage, and deliver this letter to your father. He probably may recollect somewhat of me, though you are too young to do so. Farewell. I shall not soon forget you, and I will hope you will not forget me.” Adorno poured out the effusions of a grateful and affectionate heart, and they parted with mutual tears and embraces.

The young man had a prosperous voyage home ; and the transport with which he was again beheld by his

almost heart-broken parents may more easily be conceived than described. After learning that he had been a captive in Tunis, (for it was supposed that the ship in which he sailed had foundered at sea,) "And to whom (said old Adorno,) am I indebted for the inestimable benefit of restoring you to my arms?" "This letter (said his son) will inform you." He opened it, and read as follows :—

"That son of a vile mechanic, who told you that one day you might repent the scorn with which you treated him, has the satisfaction of seeing his prediction accomplished : for know, proud noble ! that the deliverer of your only son from slavery is,—*The banished Uberto.*"

Adorno dropped the letter, and covered his face with his hand, while his son was displaying, in the warmest language of gratitude, the virtues of Uberto, and the truly paternal kindness he had experienced from him.

As the debt could not be cancelled, Adorno resolved if possible to repay it. He made such powerful intercession with the other nobles, that the sentence pronounced on Uberto was reversed, and full permission given him to return to Genoa. In apprising him of this event, Adorno expressed his sense of the obligations he lay under to him, acknowledged the genuine nobleness of his character, and requested his friendship. Uberto returned to his country, and closed his days in peace, with the universal esteem of his fellow-citizens.

LESSON 7.—*Alpine Travels.*

After my return from Naples to Rome, I was almost immediately recalled to England by a melancholy event, the death of a very near and dear relation ; and I left my

two friends, Ambrosio and Onuphrio, to pursue their travels, which were intended to be of some extent and duration.

In my youth, and through the prime of manhood, I never entered London without feelings of pleasure and hope. It was to me the grand theatre of intellectual activity, the field of every species of enterprise and exertion, the metropolis of the world of business, thought, and action. There I was sure to find the friends and companions of my youth, to hear the voice of encouragement and praise. There society of the most refined kind offered daily its banquets to the mind, with such variety that satiety had no place in them, and new objects of interest and ambition were constantly exciting attention, either in politics, literature, or science.

I now entered this great city in a very different tone of mind, one of settled melancholy, not merely produced by the mournful event which recalled me to my country, but owing likewise to an entire change in the condition of my physical, moral, and intellectual being. My health was gone, my ambition was satisfied; I was no longer excited by the desire of distinction; what I regarded most tenderly was in the grave, and to take a metaphor, derived from the change produced by time in the juice of the grape, my cup of life was no longer sparkling, sweet, and effervescent; it had lost its sweetness without losing its power, and it had become bitter.

After passing a few months in England, and enjoying (as much as I could enjoy anything) the society of the few friends who still remained alive, the desire of travel again seized me. I had preserved amidst the wreck of time one feeling strong and unbroken, the love of natural scenery; and this, in advanced life, formed a prin-

cipal motive for my plans of conduct and action. Of all the climates of Europe, England seems to me most fitted for the activity of the mind, and the least suited to repose. The alterations of a climate so various and rapid continually awake new sensations, and the changes in the sky from dryness to moisture, from the blue ethereal to cloudiness and fogs, seem to keep the nervous system in a constant state of disturbance. In the mild climate of Nice, Naples, or Sicily, where even in winter it is possible to enjoy the warmth of the sunshine in the open air beneath palm trees, or amidst evergreen groves of orange trees, covered with odorous fruit and sweet-scented leaves, mere existence is a pleasure ; and even the pains of disease are sometimes forgotten amidst the balmy influence of nature, and a series of agreeable and uninterrupted sensations invite to repose and oblivion. But in the changeful and tumultuous atmosphere of England, to be tranquil is a labour, and employment is necessary to ward off the attacks of ennui. The English as a nation are pre-eminently active[†] ; and the natives of no other country follow their objects with so much force, fire, and constancy. And as human powers are limited, there are few examples of very distinguished men living in this country to old age ; they usually fail, droop, and die, before they have attained the period naturally marked for the end of human existence. The lives of our statesmen, warriors, poets, and even philosophers, offer abundant proofs of the truth of this opinion ; whatever burns, consumes, ashes remain. Before the period of youth is passed, gray hairs usually cover those brows which are adorned with the civic oak or the laurel ; and in the luxurious and exciting life of the man of pleasure, their tints are not even preserved by the

myrtle wreath or the garland of roses from the premature winter of time.

In selecting the scenes for my new journey, I was guided by my former experience. I know no country more beautiful than that which may be called the Alpine country of Austria, including the Alps of the southern Tyrol, those of Illyria, the Noric and the Julian Alps, and the Alps of Styria and Salzburg. The variety of the scenery, the verdure of the meadows and trees, the depths of the valleys, the altitude of the mountains, the clearness and grandeur of the rivers and lakes, give it, I think, a decided superiority over Switzerland; and the people are far more agreeable; various in their costumes and manners, Illyrians, Italians, or Germans, they have all the same simplicity of character, and are all distinguished by their love of their country, their devotion to their sovereign, their honesty, and (with very few exceptions) I may say, their great civility and courtesy to strangers.

In the prime of life, I had visited this region in a society which afforded me the pleasures of intellectual friendship and the delights of refined affection; later, I had left the burning summer of Italy, and the violence of an unhealthy passion, and had found coolness, shade, repose, and tranquillity there; in a still more advanced period, I had sought for and found consolation, and partly recovered my health after a dangerous illness, the consequence of labour and mental agitation; there I had found the spirit of my early vision. I was desirous therefore of again passing some time in these scenes, in the hope of re-establishing a broken constitution; and though this hope was a feeble one, yet at least I expected to spend a few of the last days of life more

tranquilly and more agreeably than in the metropoljs of my own country. Nature never deceives us ; the rocks, the mountains, the streams, always speak the same language : a shower of snow may hide the verdant woods in spring, a thunder-storm may render the blue limpid streams foul and turbulent : but these effects are rare and transient ; in a few hours, or at least days, all the sources of beauty are renovated. And nature affords no continued trains of misfortunes and miseries, such as depend upon the constitution of humanity, no hopes for ever blighted in the bud, no beings full of life, beauty, and promise, taken from us in the prime of youth. Her fruits are all balmy, bright, and sweet ; she affords none of those blighted ones so common in the life of man, and so like the fabled apples of the Dead Sea, fresh and beautiful to the sight, but when tasted full of bitterness and ashes. I have already mentioned the strong effect produced on my mind by the stranger whom I had met so accidentally at Pæstum ; the hope of seeing him again was another of my motives for wishing to leave England, and (why I know not) I had a decided presentiment that I was more likely to meet him in the Austrian states than in England, his own country.

For this journey I had one companion, an early friend and medical adviser. He had lived much in the world, had acquired a considerable fortune, had given up his profession, was now retired, and sought like myself in this journey repose of mind, and the pleasure derived from natural scenery. He was a man of a very powerful and acute understanding, but had less of the poetical temperament than any person whom I had ever known with similar vivacity of mind. He was a severe thinker, with great variety of information, an excellent physio-

logist, and an 'accomplished naturalist. In his reasonings he adopted the precision of a geometer, and was always upon his guard against the influence of imagination. He had passed the meridian of life, and his health was weak like my own ; so that we were well suited as travelling companions, moving always slowly from place to place without hurry or fatigue. I shall call this friend Eubathes.

I will say nothing of the progress of our journey through France and Germany ; I shall dwell only upon that part of it which has still a strong interest for me, and where events occurred that I shall never forget. We passed into the Alpine country of Austria by Lintz on the Danube, and followed the course of the Traun See or lake of the Traun, where we halted for some days. If I were disposed to indulge in minute picturesque descriptions, I might occupy hours with details of the various characters of the enchanting scenery in this neighbourhood. The vales have that pastoral beauty and constant verdure which is so familiar to us in England, with similar enclosures and hedge-rows, and fruit and forest trees. Above are noble hills, planted with beeches and oaks ; mountains bound the view, here covered with pines and larches, there raising their marble crests, capped with eternal snows, above the clouds. The lower part of the Traun See is always, even in the most rainy seasons, perfectly pellucid ; and the Traun pours out of it over ledges of rocks a large and magnificent river, beautifully clear, and of the purest tint of the beryl. The fall of the Traun about ten miles below Gmünden, was one of our favourite haunts. It is a cataract which, when the river is full, may be almost compared to that of Schaffhausen

for magnitude, and possesses the same peculiar characters of grandeur in the precipitous rush of its awful and overpowering waters, and of beauty in the tints of its streams and foam, and in the forms of the rocks over which it falls, and the cliffs and woods by which it is overhung. In this spot an accident, which had nearly been fatal to me, occasioned the renewal of my acquaintance in an extraordinary manner with the mysterious unknown stranger. Eubathes, who was very fond of fly-fishing, was amusing himself by catching grailings for our dinner in the stream above the fall. I took one of the boats which are used for descending the canal or lock artificially cut in the rock by the side of the fall, in which salt and wood are usually transported from upper Austria to the Danube, and I desired two of the peasants to assist my servant in permitting the boat to descend by a rope to the level of the river below. My intention was to amuse myself by this rapid species of locomotion along the descending sluice. For some moments the boat glided gently along the smooth current, and I enjoyed the beauty of the moving scene around me, and had my eye fixed upon the bright rainbow scene upon the spray of the cataract above my head, when I was suddenly roused by a shout of alarm from my servant, and looking round, I saw that the piece of wood to which the rope had been attached had given way, and the boat was floating down the river at the mercy of the stream. I was not at first alarmed, for I saw that my assistants were procuring long poles, with which it appeared easy to arrest the boat before it entered the rapidly descending water of the sluice, and I called out to them to use their united force to reach the longest pole across the water, that I might be able to catch the end of it in my hand. And at this moment I

felt perfect security; but a breeze of wind suddenly came down the valley, and blew from the nearest bank; the boat was turned by it out of the side current and thrown nearer to the middle of the river, and I soon saw that I was likely to be precipitated over the cataract. My servant and boatmen rushed into the water, but it was too deep to enable them to reach the boat; I was soon in the white water of the descending stream, and my danger was inevitable. I had presence of mind enough to consider, whether my chance of safety would be greater by throwing myself out of the boat or by remaining in it, and I preferred the latter expedient. I looked from the rainbow upon the bright sun above my head, as if taking leave for ever of that glorious luminary; I raised one pious aspiration to the divine Source of light and life; I was immediately stunned by the thunder of the fall, and my eyes were closed in darkness. How long I remained insensible I know not. My first recollections after this accident were of a bright light shining above me, of warmth and pressure in different parts of my body, and of the noise of the rushing cataract sounding in my ears. I seemed awakened by the light from a sound sleep, and endeavoured to recal my scattered thoughts; but in vain, I soon fell again into slumber. From this second sleep I was awakened by a noise which seemed not altogether unknown to me, and looking upwards, I saw the bright eye and noble countenance of the unknown stranger whom I had met at Pæstum.

LESSON 8.—*Rome saved by Female Virtue.*

Coriolanus was a distinguished Roman senator and general, who had rendered eminent services to the republic. But these services were no security against envy

and popular prejudices. He was at length treated with great severity and ingratitude by the senate and people of Rome, and obliged to leave his country to preserve his life. Of a haughty and indignant spirit, he resolved to avenge himself; and with this view applied to the Volscians, the enemies of Rome, and tendered them his services against his native country. The offer was cordially embraced, and Coriolanus was made general of the Volscian army. He recovered from the Romans all the towns they had taken from the Volsci; carried by assault several cities in Latium; and led his troops within five miles of the city of Rome. After several unsuccessful embassies from the senate, all hope of pacifying the injured exile appeared to be extinguished; and the sole business at Rome was to prepare, with the utmost diligence, for sustaining a siege. The young and able-bodied men had instantly the guard of the gates and trenches assigned to them; while those of the veterans who, though exempt by their age from bearing arms, were yet capable of service, undertook the defence of the ramparts. The women in the meanwhile, terrified by these movements and the impending danger into a neglect of their wonted decorum, ran tumultuously from their houses to the temples. Every sanctuary, and especially the temple of Jupiter Capitolinus, resounded with the wailings and loud supplications of women prostrate before the statues of their divinities. In this general consternation and distress, Valeria, (sister of the famous Valerius Poplicola,) as if moved by a divine impulse, suddenly took her stand upon the top of the steps of the temple of Jupiter, assembled the women about her, and having first exhorted them not to be terrified by the greatness of the present danger, confidently declared, “that there

was yet hope for the republic; that its preservation depended upon them, and upon their performance of the duty they owed their country.”—“Alas!” cried one of the company, “what resource can there be in the weakness of wretched women, when our bravest men, our ablest warriors, themselves despair?” “It is not by the sword, nor by strength of arm,” replied Valeria, “that we are to prevail; these belong not to our sex. Soft moving words must be our weapons and our force. Let us all in our mourning attire, and accompanied by our children, go and entreat Veturia, the mother of Coriolanus, to intercede with her son for our common country. Veturia’s prayers will bend his soul to pity. Haughty and implacable as he has hitherto appeared, he has not a heart so cruel and obdurate as not to relent when he shall see his mother—his revered, his beloved mother—a weeping suppliant at his feet.”

This motion being universally applauded, the whole train of women took their way to Veturia’s house. Her son’s wife, Volumnia, who was sitting with her when they arrived, and was greatly surprised at their coming, hastily asked them the meaning of so extraordinary an appearance. “What is it,” said she, “what can be the motive that has brought so numerous a company of visitors to this house of sorrow?”

Valeria then addressed herself to the mother: “It is to you, Veturia, that these women have recourse in the extreme peril with which they and their children are threatened. They entreat, implore, conjure you, to compassionate their distress, and the distress of our common country. Suffer not Rome to become a prey to the Volsci, and our enemies to triumph over our liberty. Go to the camp of Coriolanus: take with you Volumnia and

her two sons : let that excellent wife join her intercession to yours. Permit these women with their children to accompany you : they will all cast themselves at his feet. O Veturia, conjure him to grant peace to his fellow-citizens. Cease not to beg till you have obtained. So good a man can never withstand your tears : our only hope is in you. Come then, Veturia ; the danger presses ; you have no time for deliberation ; the enterprise is worthy of your virtue ; heaven will crown it with success ; Rome shall once more owe its preservation to our sex. You will justly acquire to yourself an immortal fame, and have the pleasure to make every one of us a sharer in your glory.”

Veturia, after a short silence, with tears in her eyes, answered : “ Weak indeed is the foundation of your hope, Valeria, when you place it on the aid of two miserable women. We are not wanting in affection to our country, nor need we any remonstrance or entreaties to excite our zeal for its preservation. It is the power only of being serviceable that fails us. Ever since that unfortunate hour when the people in their madness so unjustly banished Coriolanus, his heart has been no less estranged from his family than from his country. You will be convinced of this sad truth by his own words to us at parting. When he returned home from the assembly, where he had been condemned, he found us in the depth of affliction, bewailing the miseries that were sure to follow our being deprived of so dear a son, and so excellent a husband. We had his children upon our knees. He kept himself at a distance from us ; and when he had a while stood silent, motionless as a rock, his eyes fixed and without shedding a tear ; ‘ ’Tis done,’ he said. ‘ O mother, and thou Volumnia, the best of

wives, to you Marcius is no more. I am banished hence for my affection to my country, and the services I have done it. I go this instant ; and I leave for ever a city, where all good men are proscribed. Support this blow of fortune with the magnanimity that becomes women of your high rank and virtue. I commend my children to your care. Educate them in a manner worthy of you, and of the race from which they came. Heaven grant they may be more fortunate than their father, and never fall short of him in virtue ; and may you in them find your consolation !—Farewell.'

"We started up at the sound of this word, and with loud cries of lamentation ran to him to receive his last embraces. I led his elder son by the hand ; Volumnia had the younger in her arms. He turned his eyes from us, and putting us back with his hand, 'Mother,' said he, 'from this moment you have no son : our country has taken from you the stay of your old age. Nor to you, Volumnia, will Marcius be henceforth a husband ; mayst thou be happy with another more fortunate !—My dear children, you have lost your father.'

"He said no more ; but instantly broke away from us. He departed from Rome without settling his domestic affairs, or leaving any orders about them ; without money, without servants, and even without letting us know to what part of the world he would direct his steps. It is now the fourth year since he went away ; and he has never inquired after his family, nor, by letter or messenger, given us the least account of himself : so that it seems as if his mother and his wife were the chief objects of that general hatred which he shows to his country.

"What success then can you expect from our en-

treaties to a man so implacable? Can two women bend that stubborn heart, which even all the ministers of religion were not able to soften? And indeed what shall I say to him? What can I reasonably desire of him?—that he would pardon ungrateful citizens, who have treated him as the vilest criminal? that he would take compassion upon a furious unjust populace, which had no regard for his innocence? and that he would betray a nation, which has not only opened him an asylum, but has even preferred him to her most illustrious citizens in the command of her armies? With what face can I ask him to abandon such generous protectors, and deliver himself again into the hands of his most bitter enemies? Can a Roman mother, and a Roman wife, with decency exact from a son and a husband compliances which must dishonour him before both gods and men? Mournful circumstance, in which we have not power to hate the most formidable enemy of our country! Leave us therefore to our unhappy destiny; and do not desire us to make it more unhappy, by an action that may cast a blemish upon our virtue.”

The women made no answer but by their tears and entreaties. Some embraced her knees, others beseeched Volumnia to join her prayers to theirs; all conjured Veturia not to refuse her country this last assistance. Overcome at length by their urgent solicitations, she promised to do as they desired.

The very next day, all the most illustrious of the Roman women repaired to Veturia's house. There they presently mounted a number of chariots which the consuls had ordered to be made ready for them; and without any guard took the way to the enemy's camp.

Coriolanus, perceiving from afar that long train of

chariots, sent out some horsemen to learn the design of it. They quickly brought him word that it was his mother, his wife, and a great number of other women, and their children, coming to the camp. He doubtless conjectured what views the Romans had in so extraordinary a deputation; that this was the last expedient of the senate; and in his own mind he determined not to let himself be moved. But he reckoned upon a savage inflexibility that was not in his nature; for, going out with a few attendants to receive the women, he no sooner beheld Veturia attired in mourning, her eyes bathed in tears, and with a countenance and motion that spoke her sinking under a load of sorrow, than he ran hastily to her; and not only calling her mother, but adding to that word the most tender epithets, embraced her, wept over her, and held her in his arms to prevent her falling. The like tenderness he presently after expressed to his wife, highly commending her discretion in having constantly remained with his mother since his departure from Rome. And then with the warmest paternal affection he caressed his children.

When some time had been allowed to those silent tears of joy, which often flow plenteously at the sudden and unexpected meeting of persons dear to each other, Veturia entered upon the business she had undertaken. After many forcible appeals to his understanding and patriotism, she exclaimed, "What frenzy, what madness of anger transports you, my son! Heaven is appeased by supplications, vows, and sacrifices: shall mortals be implacable? Will Marcius set no bounds to his resentment? But allowing that thy enmity to thy country is too violent to let thee listen to her petition for peace; yet be not deaf, my son, be not inexorable to the pray-

ers and tears of thy mother. Thou darest the very appearance of ingratitude towards the Volsci; and shall thy mother have reason to accuse thee of being ungrateful? Call to mind the tender care I took of thy infancy and earliest youth; the alarms, the anxiety I suffered on thy account when, entered into the state of manhood, thy life was almost daily exposed in foreign wars; the apprehensions, the terrors I underwent, when I saw thee so warmly engaged in our domestic quarrels, and with heroic courage opposing the unjust pretensions of the furious plebeians. My sad forebodings of the event have been but too well verified. Consider the wretched life I have endured, if it may be called life, the time that has passed since I was deprived of thee. O Marcius, refuse me not the only request I ever made to thee; I will never importune thee with any other. Cease thy immoderate anger; be reconciled to thy country; this is all I ask: grant me but this, and we shall both be happy. Freed from those tempestuous passions which now agitate thy soul, and from all the torments of self-reproach, thy days will flow smoothly on in the sweet serenity of conscious virtue: and as for me, if I carry back to Rome the hopes of an approaching peace, and assurance of thy being reconciled to thy country, with what transports of joy shall I be received! In what honour, in what delightful repose, shall I pass the remainder of my life! What immortal glory shall I have acquired!"

Coriolanus made no attempt to interrupt Veturia while she was speaking; and when she had ceased, he still continued in deep silence. Anger, hatred, and desire of revenge, balanced in his heart those softer passions which the sight and discourse of his mother had awakened in his breast. Veturia, perceiving his irresolution,

and fearing the event, thus renewed her expostulation : “ Why dost thou not answer me, my son ? Is there then such greatness of mind in giving all to resentment ? Art thou ashamed to grant anything to a mother who thus entreats thee, thus humbles herself to thee ? If it be so, to what purpose should I longer endure a wretched life ? ” As she uttered these last words, interrupted by sighs, she threw herself prostrate at his feet. His wife and children did the same ; and all the other women, with united voices of mournful assent, begged and implored his pity.

The Volscian officers, not able unmoved to behold this scene, turned away their eyes : but Coriolanus, almost beside himself to see Veturia at his feet, passionately cried out, “ Ah ! mother, what art thou doing ? ” And, tenderly pressing her hand in raising her up, he added in a low voice, “ Rome is saved, but thy son is lost ! ”

Early the next morning, Coriolanus broke up his camp, and peaceably marched his army homewards. Nobody had the boldness to contradict his orders. Many were exceedingly dissatisfied with his conduct ; but others excused it, being more affected with his filial respect to his mother than with their own interests.

CHAPTER II.

DIDACTIC PIECES.

LESSON 1.—*On the Duties of the Young.*

It is the duty of young people to remember their Creator in the days of their youth. While the heart is most susceptible of piety and gratitude, they should reverence and fear, worship and praise, love and obey,

the great and glorious Being who made them after his own image, and is always doing them good. In the season of youth, the heart should rise into the admiration of what is great, glow with the love of what is fair and excellent, and melt at the discovery of tenderness and goodness. Where can an object be found so proper to kindle those affections as the Father of the universe, and the Author of all felicity? His works everywhere display grandeur and majesty, and the richest blessings flow from his liberal hand. He is the guide of your childhood, the guardian of your youth, and the hope of your coming years.

As you ought to exercise piety towards God, so you ought likewise to honour your parents, and submit to those who are your superiors in knowledge, in station, and in years. Dependence and obedience belong to youth: and modesty is one of its chief ornaments. Commit yourselves, therefore, to the guidance of the more experienced, and become wise by the wisdom of those who have gone before you.

Truth is the basis of every virtue. Dissimulation in youth is the forerunner of perfidy in old age: it obscures the lustre of every accomplishment, and sinks you into contempt with God and man.

As you value, therefore, the approbation of heaven, or the esteem of the world, cultivate the love of truth. In all your proceedings, be direct and consistent.

Ingenuousness and candour possess the most powerful charms. They bespeak universal favour, and carry an apology for almost every failing.

The path of truth is a plain and safe path; that of falsehood is a perplexing maze. After the first departure from sincerity, it is not in your power to stop.

One artifice unavoidably leads to another, till you are left entangled in your own snare.

Youth is the proper season for cultivating the benevolent and humane affections. As a great part of your happiness is to depend on the connection which you form with others, it is of high importance that you acquire betimes the temper and the manners which will render such connection comfortable. Let a sense of justice be the foundation of all your social qualities. In your most early intercourse with the world, and even in your youthful amusements, let no unfairness be found. Engrave on your mind that sacred rule, "of doing all things to others according as you wish that they should do to you."

Compassion is an emotion of which you ought never to be ashamed. Graceful in youth is the tear of sympathy, and the heart that melts at the tale of woe. Go sometimes, therefore, "to the house of mourning," as well as "to the house of feasting." Accustom yourselves to think of the distresses of human life; of the solitary cottage, the dying parent, and the weeping orphan. Never sport with pain and distress in any of your amusements, nor treat even the meanest insect with wanton cruelty.

Diligence, industry, and proper improvement of time, are material duties of the young. In youth the habits of industry are most easily acquired. In youth, the motives to it are strongest, from ambition and from duty, from emulation and hope, and from all the prospects which the beginning of life affords.

Industry is not only the instrument of improvement, but the foundation of pleasure. Nothing is so opposite to the true enjoyment of life as the feeble state of an

indolent mind. He who is a stranger to industry may possess, but he cannot enjoy ; for it is labour only which gives the relish to pleasure.

Think not that any affluence of fortune, or any elevation of rank, exempts you from the duties of application and industry. Industry is the law of our being : it is the demand of nature, of reason, and of God. Remember always, that the years which now pass over your heads leave permanent memorials behind them. They form an important part of the register of your life. From your thoughtless minds they escape ; but they remain in the remembrance of God.

LESSON 2.—*On the Duty of Children to Parents.*

As the duty of children to parents is enjoined in the clearest manner, and under the strongest sanctions, by the law of God ; so it is also required by—what is indeed the law of God too—the voice of nature, reason, and humanity.

You observe how the young of animals appear to be committed by nature to the care and protection of their parents : they have continual recourse to them in their wants and fears, and conform instantly to every intimation of such lawful guides and governors. The parents accordingly, on the other hand, are in a most wonderful manner both disposed to undertake this trust and enabled to execute it.

These ties, we see, are first formed by the hand of nature ; and the child that endeavours to break loose from this regular dependence and subjection opposes the order instituted by Providence and the course of things. He can find no example in any other species to countenance his unnatural wilfulness ; and the voice

of every creature upon earth cries out against him and condemns him.

But reason also in the human species is on the same side, and strengthens the ties of nature. Regard to the public and our own welfare will prescribe the same conduct, to which we are already prompted by prior motives. Nor is this argument above the capacity of those to whom it is addressed: even a child may soon perceive so much, as that he is not so wise as his parents; that if he follow his own fancy in opposition to their judgment, it is very likely both that he will do mischief, and have cause himself to repent it. For, together with the superiority of their understanding, he will observe also the tenderness of their affection. Their advice, he must soon be sensible, is sincere, honest, and disinterested. His other counsellors (and his passions are to be reckoned among the number) may be his enemies; and generally they are at best but their own friends. But his parents, he may be very sure, will be faithful to him. Theirs are the counsels of kindness; and their reproofs, the effects, and very often the best tokens, of it. There can be no difference between him and them, but about the means: the thing aimed at on both sides is the same; it is his welfare, honour, and happiness. They would be glad to gratify even his humour, but they prefer his lasting good. No other consideration than the view of his advantage could prevail with them to offend him.

This affection which your parents bear towards you, and the great good they have done you in consequence of it, give them still another title to your consideration and respect, a right to be regarded by you for their own sake. And if in some instances you were persuaded, and

truly too, that their counsels were not the most advantageous, this would not immediately exempt you from all obligation to comply with them. Gratitude, and some tenderness surely on your part, in return for so much on theirs, must be allowed to have weight, and come in to supply the place of more selfish considerations. Must your own satisfaction be the end of all your measures? or rather, cannot you receive satisfaction from the gratification of others? Will it afford you no pleasure to give it to your best friends and greatest benefactors? You may part with something, were it even to the mistakes of such persons; and exchange, with no great loss, your own desires for this pleasure of pleasing.

LESSON 3.—*On the Duty of Children to Parents,*
(concluded.)

The occasions which demand from you the greatest tokens of respect and tenderness in your behaviour to your parents, are when they labour under infirmities of body or mind, and in the time of their extreme old age. You will then double all your tender assiduity; you will watch their wishes, prevent their desires, catch every precious opportunity to be grateful, with an eager, sweet attention: of which you will give them a thousand little inestimable proofs, which words cannot teach, and not to know is criminal; which require no capacity but that of feeling, and are to be understood in the heart.

I do not condescend to mention that they may be in want: they must not be so, while you have anything, though it were only strength, to maintain them by your labour.

But, however affluent their fortunes, or liberal your supplies, they will always want, in that state of old age

and infirmity, an indulgence and care which wealth cannot procure ; and which, if it could, lose all their value when they are purchased. They will look for tokens of your kindness, which cannot be received from other hands. Their child is still the comfort and delight of their dying eyes ; and no other object is so pleasing. You will be ready to answer such demands ; your heart will correspond to these calls of nature. You will be proud of the humblest offices, and pleased with the most irksome. They cannot give your patience more exercise than you have given theirs. They will not live to let you clear your obligations. Pay what you can, you will still be debtors. Your felicity must be singular, or their distress, if you recompense them the things that they have done for you.

It is written indeed in history, that one woman, when her aged father was confined in prison, and likely to die by famine there, obtained leave of his keepers to visit him once a day, and sustained him with the milk from her breast. Filial duty, in this instance, took the place of parental love, and taught her in his extremity to become a mother to him.

One writer seems to intimate, that this same old man, who had so much comfort in his daughter, had been a voluntary prisoner himself in his younger years for his father. How remarkably would this fulfil the words of the wise Jewish writer, “ He that honoureth his father shall have joy of his own children !”

LESSON 4.—*Virtue, Man's true Interest.*

I find myself existing upon a little spot, surrounded every way by an immense unknown expansion. Where am I ? What sort of place do I inhabit ? Is it exactly

accommodated, in every instance, to my convenience? Is there no excess of cold, none of heat, to offend me? Am I never annoyed by animals either of my own or of a different kind? Is everything subservient to me, as though I had ordered all myself?—No, nothing like it;—the furthest from it possible. The world appears not, then, originally made for the private convenience of me alone.

But is it not possible so to accommodate it by my own particular industry? If to accommodate man and beast, heaven and earth, be beyond me, it is not possible. What consequence then follows? Can there be any other than this: if I seek an interest of my own, detached from that of others, I seek an interest which is chimerical, and can never have existed.

How then must I determine? Have I no interest at all?—Why no interest?—Can I be contented with none, but one separate and detached? Is a social interest, joined with others, such an absurdity as not to be admitted? The bee, the beaver, and the tribes of herding animals, are enough to convince me that the thing is somewhere at least possible. How then am I assured that it is not equally true of man? Admit it; and what follows? If so, then honour and justice are my interest; then the whole train of moral virtues is my interest; without some portion of which not even thieves can maintain society.

But farther still,—I stop not here;—I pursue the social interest as far as I can trace my several relations. I pass from my own stock, my own neighbourhood, my own nation, to the whole race of mankind, as dispersed throughout the earth. Am I not related to them all by the mutual aids of commerce, by the general inter-

course of arts and letters, by that common nature of which we all participate?

Again; I must have food and clothing. Without a proper genial warmth, I instantly perish. Am I not related, in this view, to the very earth itself? to the distant sun, from whose beams I derive vigour? to that stupendous course and order of the infinite host of heaven, by which the times and seasons ever uniformly pass on? Were this order once confounded, I could not probably survive a moment; so absolutely do I depend on this common general welfare. What then have I to do, but to enlarge virtue into piety? Not only honour and justice, and what I owe to man, are my interest; but gratitude also, acquiescence, resignation, adoration, and all I owe to this great polity, and its greater Governor, our common Parent.

LESSON 5.—*On Sincerity.*

Truth and sincerity have all the advantages of appearance, and many more. If the show of anything be good for anything, I am sure the reality is better; for, why does any man dissemble, or seem to be that which he is not, but because he thinks it good to have the qualities he pretends to? For to counterfeit and dissemble is to put on the appearance of some real excellence. Now the best way for a man to seem to be anything, is really to be what he would seem to be. Besides, it is often as troublesome to support the pretence of a good quality as to have it: and if a man have it not, it is most likely he will be discovered to want it, and then all his labour to seem to have it is lost. There is something unnatural in painting, which a skilful eye will easily discern from native beauty and complexion.

It is hard to personate and act a part long ; for where truth is not at the bottom, nature will always be endeavouring to return, and will betray herself at one time or other. Therefore, if any man think it convenient to seem good, let him be so indeed, and his goodness will appear to every one's satisfaction ; for truth is convincing, and carries its own light and evidence along with it, and will not only commend us to every man's conscience, but, which is more, to God, who searcheth our hearts. So that upon all accounts sincerity is true wisdom. Particularly as to the affairs of this world, integrity hath many advantages over all the artificial modes of dissimulation and deceit. It is much the plainer and easier, much the safer and more secure way of dealing in the world ; it has less of trouble and difficulty, of entanglement and perplexity, of danger and hazard in it ; it is the shortest and nearest way to our end, carrying us thither in a straight line, and will hold out and last longest. The arts of deceit and cunning continually grow weaker, and less effectual and serviceable to those that practise them ; whereas integrity gains strength by use, and the more and longer any man practises it, the greater service it does him, by confirming his reputation, and encouraging those with whom he has to do to repose the greatest confidence in him, which is an unspeakable advantage in business and the affairs of life.

A dissembler must always be upon his guard, and watch himself carefully, that he do not contradict his own pretensions ; for he acts an unnatural part, and therefore must put a continual force and restraint upon himself. Whereas, he that acts sincerely hath the easiest task in the world ; because he follows nature, and so is put to no trouble and care about his words and actions ;

he needs not invent any pretences beforehand, or make excuses afterwards, for anything he has said or done.

But insincerity is very troublesome to manage : a hypocrite hath so many things to attend to, that his life is a very perplexed and intricate thing. A liar hath need of a good memory, lest he contradict at one time what he said at another : but truth is always consistent with itself, and needs nothing to help it out : it is always near at hand, and sits upon our lips ; whereas a lie is troublesome, and needs a great many more to make it good.

Add to all this, that sincerity is the most compendious wisdom, and an excellent instrument for the speedy despatch of business. It creates confidence in those we have to deal with, saves the labour of many inquiries, and brings things to an issue in few words. It is like travelling in a plain beaten road, which commonly brings a man sooner to his journey's end than byways, in which men often lose themselves. In a word, whatever convenience may be thought to be in falsehood and dissimulation, it is soon over ; but the inconvenience of it is perpetual, because it brings a man under an everlasting jealousy and suspicion, so that he is not believed when he speaks truth, nor trusted when perhaps he means honestly. When a man hath once forfeited the reputation of his integrity, nothing will then serve his turn, neither truth nor falsehood.

Indeed, if a man were only to deal in the world for a day, and should never have occasion to converse more with mankind, never more need their good opinion or good word, it were then no great matter (as far as respects the affairs of this world,) if he spent his reputation all at once, and ventured it at one throw. But if he be to continue in the world, and would have the advantage

of reputation while he is in it, let him make use of truth and sincerity in all his words and actions ; for nothing but this will hold out to the end. All other arts may fail, but truth and integrity will carry a man through, and bear him out to the last.

LESSON 6.—*Beauties of Natural History.*

Animated being is that branch of Natural History which possesses charms the most numerous and diversified, and is fraught with the most important consequences to man : but this division of nature cannot be comprised at a glance. It is advisable that the student should begin with examining the nature and qualities of such quadrupeds as are most familiar to his observation. Even in the dog and horse, how many properties reside which are hourly experienced, but seldom considered with attention ! From such objects as are most obvious and inviting, he should gradually ascend by firm and patient steps to the knowledge of others.

The larger animals, and such as contribute to general pleasure and utility, will doubtless first engage his attention. After duly scanning their nature and instincts, their growth, their maturation, their increase, the care of their young, their selection of food, and the various means with which Providence has endowed them for their preservation, the student should descend to an examination of such quadrupeds as are more minute, or retired from his notice ; and when he is tolerably well acquainted with those of his own country, should extend his views to the natives of foreign regions.

The sagacious docility of the elephant, the persevering fortitude of the camel, the generous magnanimity of the lion, and the savage fierceness of the hyena and the

tiger, will supply abundant materials for reflection, and incentives to further and closer investigation. It will be thus discovered how the useful quadrupeds are wisely allotted to their respective climates, and to the exigencies of man; and how the noxious classes are generally restrained to haunts little frequented by our race, while their numbers are limited by the most admirable and benevolent economy of nature.

After this acquaintance with the history of quadrupeds, the student should proceed to birds, the most beautiful and most innocent tribes of the creation; and learn the means by which they are enabled to subsist either on land or water; the invariable structure of their nests, according to their respective kinds; and the fond affection they display for their young. He will find that those birds whose beauty of plumage excites his admiration, are generally destitute of harmonious voices; so that the parrot, the peacock, and the pheasant, disgust by their screams, while the homely lark, the nightingale, and blackbird, delight by the sweetness of their melody, and captivate unseen.

Reptiles, the next class in animated nature, are far less numerous, and less inviting. In the formidable alligator, in the poisonous serpent, in the harmless tortoise, and the lively frog, very opposite qualities will be discovered; but in all will still be discernible a perfect fitness to their respective situations in the scale of creation.

The next class to which the student should turn his attention is that of fishes. The conformation of these, their wonderful adaptation to the element which they inhabit, their amazing fecundity, their powers and faculties, though inferior to those of birds and beasts, will challenge his admiration, and animate his researches.

The science of entomology, or of insects, is so extensive as to baffle the most inquisitive investigator. Every plant, every leaf, is the abode or food of one or more species, some of which are imperceptible to the naked eye. All insects are propagated from eggs, and, by a wonderful law of nature, undergo several metamorphoses before they arrive at their perfect state. The caterpillar, the aurelia, and the butterfly, so distinguishable from each other, are but one and the same animal in different stages of its existence. Even the minutest insect is formed with as much skill as the most stately quadruped; and is equally qualified to enjoy life, and to transmit that life to posterity. A general knowledge however of this numerous class will be sufficient; and from insects he will extend his observation to worms, including the shelly tribe, the beauty and the mechanism of which baffle all description.

In these, life seems to be scarcely active, and to many of them a locomotive power is denied; yet even the zoophyte, which connects the animal with the vegetable kingdom, even the animalcule that floats in the liquors which we drink, or lodges in our food, has its sphere of duties to fulfil, and its share of blessings to enjoy.

From the study of animated being, let the curious student direct his attention to vegetables; from vegetables to minerals; and from the garniture produce of the earth to the celestial orbs that roll in the abyss of space; the planets in their regular courses, the comets in their eccentric orbits, and the myriads of fixed stars that adorn the vault of heaven. How amazing is the contemplation of the universe! Wonders crowd on wonders; and the mind is bewildered, till it recurs to the Supreme Universal Cause, and reposes on the bosom of Omnipotence.

LESSON 7.—*Happiness prevalent in the Creation.*

This is a happy world after all. The air, the earth, the water, teem with delighted existence. In a spring noon or a summer evening, on whichever side I turn my eyes, myriads of happy beings crowd upon my view. “The insect youth are on the wing.” Swarms of new-born flies are trying their pinions in the air. Their sportive motions, their wanton mazes, their gratuitous activity, their continual change of place without use or purpose, testify their joy, and the exultation which they feel in their lately discovered faculties. A bee amongst the flowers in spring, is one of the most cheerful objects that can be looked upon. Its life appears to be all enjoyment; so busy and so pleased: yet it is only a specimen of insect life, with which, by reason of the animal being half domesticated, we happen to be better acquainted than we are with that of others. The whole winged insect tribe, it is probable, are equally intent upon their proper employments, and, under every variety of constitution, gratified, and perhaps equally gratified, by the offices which the Author of their nature has assigned to them. But the atmosphere is not the only scene of enjoyment for the insect race. Plants are covered with aphides, greedily sucking their juices, and constantly, as it should seem, in the act of sucking. It cannot be doubted but that this is a state of gratification. What else should fix them so close to the operation, and so long? Other species are running about, with an alacrity in their motions which carries with it every mark of pleasure. Large patches of ground are sometimes half covered with these brisk and sprightly natures. If we look to what the waters produce, shoals of the fry of fish frequent the margins of rivers, of lakes, and of the sea

itself. These are so happy, that they know not what to do with themselves. Their attitudes, their vivacity, their leaps out of the water, their frolics in it, (which I have noticed a thousand times with equal attention and amusement,) all conduce to show their excess of spirits, and are simply the effects of that excess. Walking by the seaside in a calm evening, upon a sandy shore, and with an ebbing tide, I have frequently remarked the appearance of a dark cloud, or rather very thick mist, hanging over the edge of the water, to the height, perhaps, of half a yard, and of the breadth of two or three yards, stretching along the coast as far as the eye could reach, and always retiring with the water. When this cloud came to be examined, it proved to be nothing else than so much space, filled with young shrimps in the act of bounding into the air from the shallow margin of the water, or from the wet sand. If any motion of a mute animal could express delight, it was this: if they had meant to make signs of their happiness, they could not have done it more intelligibly. Suppose then, what I have no doubt of, each individual of this number to be in a state of positive enjoyment, what a sum, collectively, of gratification and pleasure have we here before our view!

The young of all animals appear to me to receive pleasure simply from the exercise of their limbs and bodily faculties, without reference to any end to be attained, or any use to be answered by the exertion. A child, without knowing anything of the use of language, is in a high degree delighted with being able to speak. Its incessant repetition of a few articulate sounds, or perhaps of the single word which it has learned to pronounce, proves this point clearly. Nor is it less pleased with its first successful endeavours to walk, or rather to run (which

precedes walking), although entirely ignorant of the importance of the attainment to its future life, and even without applying it to any present purpose. A child is delighted with speaking, without having anything to say; and with walking, without knowing where to go. And prior to both these, I am disposed to believe, that the waking hours of infancy are agreeably taken up with the exercise of vision, or perhaps more properly speaking, with learning to see.

But it is not for youth alone that the great Parent of creation hath provided. Happiness is found with the purring cat no less than with the playful kitten; in the arm-chair of dozing age, as well as in either the sprightliness of the dance or the animation of the chase. To novelty, to acuteness of sensation, to hope, to ardour of pursuit, succeeds, what is in no inconsiderable degree an equivalent for them all, "perception of ease." Herein is the exact difference between the young and the old: the young are not happy, but when enjoying pleasure; the old are happy when free from pain. And this constitution suits with the degrees of animal power which they respectively possess. The vigour of youth has to be stimulated to action by impatience of rest; whilst to the imbecility of age, quietness and repose become positive gratifications. In one important respect the advantage is with the old. A state of ease is, generally speaking, more attainable than a state of pleasure. A constitution therefore which can enjoy ease, is preferable to that which can taste only pleasure. This same perception of ease oftentimes renders old age a condition of great comfort; especially when riding at its anchor after a busy or tempestuous life. It is well described by Rousseau to be the interval of repose and enjoyment between the hurry and the end of life.

LESSON 8.—*The Love of Fame.*

There is no principle more deeply implanted in the mind than the love of fame and of distinction : and there is none which, when properly regulated, is subservient to more valuable purposes. It is at the same time a principle which it is perhaps as difficult to restrain within the bounds of moderation as any other. In some ungoverned minds it seems to get the better of every other principle of action, and must be a source to the possessor of perpetual mortification and disgust, by leading him to aspire at eminence in every different line of ambition, and to repine if in any one of them he is surpassed by others. In the midst of the astonishing projects which employed the sublime genius of Richelieu, his peace of mind was completely ruined by the success of the *Cid* of Corneille. The first appearance of this tragedy (according to Fontenelle) alarmed the Cardinal as much as if he had seen the Spaniards at the gates of Paris ; and the most acceptable flattery which his minions could offer was to advise him to eclipse the fame of Corneille by a tragedy of his own. Nor did he aim merely at adding the fame of a poet to that of statesman. Mortified to think that any one path of ambition was shut against him, he is said, when on his death-bed, to have held some conversations with his confessor about the possibility of his being canonized as a saint.

In order to restrain this violent and insatiable desire within certain bounds, there are many checks appointed in our constitution. In the first place, it can be *completely* gratified only by the actual possession of those qualities for which we wish to be esteemed, and of those advantages which are the proper grounds of distinction. A good man is never more mortified than when he is

praised for qualities he does not possess, or for advantages in which he is conscious he has no merit. Secondly, although the gratification of this principle consists in a certain superiority over other men, we feel that we are not entitled to take undue advantages of them. We may exert ourselves to the utmost in the race of glory, but we are not entitled to obstruct the progress of others, or to detract from their reputation, in order to advance our own. All this will be readily granted in general ; and yet in practice there is surely nothing more difficult than to draw the line between emulation and envy, or to check that self-partiality which, while it leads us to dwell on our own advantages, and to magnify them in our own estimation, prevents us either from attending sufficiently to the merits of others, or from viewing them in the most favourable light. Of this difficulty a wise and good man will soon be satisfied from his own experience ; and he will endeavour to guard against it as far as he is able, by judging of the merits of a rival, or even of an enemy, as he would have done if there had been no interference between them. He will endeavour, in short, to do *justice* to their merits, not merely in *words*, but in sincerity ; and bring himself, if possible, to love and to honour that genius and ability which have eclipsed his own. Nor will he retire in disgust from the race because he has been outstripped by others, but will redouble all his exertions in the service of mankind ; recollecting that, if nature has been more partial to others in her intellectual gifts than to him, she has left open to all the theatre of virtue, where the merits of individuals are determined, not by their actual attainments, but by the use and improvement they make of those advantages which their situation has afforded them. In

the meantime, he will suffer no permanent mortification from this disappointment of his ambition ; but from his exertions to suppress every emotion of envy, and to conquer the mean partialities of vanity and self-love, he will derive a satisfaction with himself, and a sense of his own elevation, of a still more flattering kind than all the splendour of ability can bestow.

I must not omit to add, that the love of fame and of distinction, where it is strong, is commonly united with a certain degree of genius, and is seldom to be found in men wholly destitute of it. While those, therefore, that are under the influence of this passion see a few raised *above* them, let them recollect their own superiority to the multitude, and study to make the only return in their power for this partiality of nature, by devoting their talents, such as they are, to diffuse, in the world, *truth*, *virtue*, and *happiness*.

LESSON 9.—*Inconsistencies in Search for Happiness.*

As most of the unhappiness in the world arises rather from disappointed desires than from positive evil, it is of the utmost consequence to attain just notions of the laws and order of the universe, that we may not vex ourselves with fruitless wishes, or give way to groundless and unreasonable discontent. We should consider this world as a great mart of commerce, where fortune exposes to our view various commodities, riches, ease, tranquillity, fame, integrity, knowledge. Everything is marked at a settled price. Our time, our labour, our ingenuity, is so much ready money, which we are to lay out to the best advantage. Examine, compare, choose, reject ; but stand to your own judgment, and do not, like children, when you have purchased one thing, re-

pine that you do not possess another which you did not purchase. Such is the force of well-regulated industry, that a steady and vigorous exertion of our faculties, directed to one end, will generally insure success. Would you, for instance, be rich? Do you think it good to sacrifice everything else to that single point? You may then be rich. Thousands have become so from the lowest beginnings, from toil and patient diligence, and attention to the minutest articles of expense and profit. But you must give up the pleasures of leisure, of a vacant mind, of a free unsuspicious temper. If you preserve your integrity, it must be a coarse-spun and vulgar honesty. Those high and lofty notions of morals which you brought with you from the schools must be considerably lowered, and mixed with the baser alloy of a jealous and worldly-minded prudence. You must learn to do hard, if not unjust, things; and as for the nice embarrassments of a delicate and ingenuous spirit, it is necessary for you to get rid of them as fast as possible. You must shut your heart against the muscs, and be content to feed your understanding with plain household truths. In short, you must not attempt to enlarge your ideas, or polish your taste, or refine your sentiments, but must keep on in one beaten track, without turning aside either to the right hand or to the left. "But I cannot submit to drudgery like this: I feel a spirit above it." 'Tis well: be above it then; only do not repine that you are not rich.

Is knowledge the pearl of price? That too may be purchased—by steady application, and long solitary hours of study and reflection. Bestow these, and you shall be wise. "But," says the man of letters, "what a hardship is it that many who are grossly illiterate shall

raise a fortune and make a figure, while I have little more than the common conveniences of life !” Was it in order to raise a fortune that you consumed the sprightly hours of youth in study and retirement ? Was it to be rich that you grew pale over the midnight lamp, and distilled the sweetness from the Greek and Roman spring ? You have then mistaken your path, and ill employed your industry. “What reward have I then for all my labours ?” What reward ? A large comprehensive soul, well purged from vulgar fears and perturbations and prejudices, able to comprehend and interpret the works of man and of God : a rich, flourishing, cultivated mind, pregnant with inexhaustible stores of entertainment and reflection : a perpetual spring of fresh ideas ; and the conscious dignity of superior intelligence. What reward can you ask besides ?

But is it not some reproach upon the economy of Providence that such a one, who is a mean dirty fellow, should have amassed wealth enough to buy half a nation ? Not in the least. He made himself a mean dirty fellow for that very end. He has paid his health, his conscience, his liberty for it, and will you envy him his bargain ? Will you hang your head and blush in his presence, because he outshines you in equipage and show ? Lift up your brow with a noble confidence, and say to yourself, I have not these things, it is true ; but it is because I have not sought—because I have not desired them ; it is because I possess something better. I have chosen my lot, I am content and satisfied.

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I much admire the spirit of the ancient philosophers, in that they never attempted, as our moralists often do, to lower the tone of philosophy, and make it consistent

with all the indulgencies of indolence and sensuality. They never thought of having the bulk of mankind for their disciples ; but kept themselves as distinct as possible from a worldly life. They plainly told men what sacrifices were required, and what advantages they were which might be expected. “ If you would be a philosopher, these are the terms : You must do thus and thus, there is no other way : if not, go and be one of the vulgar.”

LESSON 10.—*Our Faculties adapted to our Circumstances.*

The infinitely wise Contriver of us, and of all things about us, hath fitted our senses, faculties, and organs to the conveniences of life, and to the business we have to do here. We are able by our senses to know and distinguish things, and to examine them so far as to apply them to our uses, and several ways to accommodate the exigencies of this life. We have insight enough of their admirable contrivances and wonderful effects, to admire and magnify the wisdom, power, and goodness, of their Author. But it appears not that God intended we should have a perfect, clear, and adequate knowledge of them ; that perhaps is not in the comprehension of any finite being. We are furnished with faculties (dull and weak as they are) to discover enough in the creatures to lead us to the knowledge of the Creator, and the knowledge of our duty ; and we are fitted well enough with abilities to provide for the conveniences of living ;—these are our business in this world. But were our senses altered and made much quicker and acuter, the appearance and outward scheme of things would have quite another face to us, and I am apt to think would be inconsistent with our

being, or at least well-being, in this part of the universe which we inhabit. He that considers how little our constitution is able to bear a remove into parts of this air not much higher than that we commonly breathe in, will have reason to be satisfied, that in this globe of earth allotted for our mansion, the all-wise Architect has suited our organs, and the bodies that are to affect them, one to another. If our sense of *hearing* were but one thousand times quicker than it is, how would a perpetual noise distract us, and we should in the quietest retirement be less able to sleep or meditate than in the middle of a sea fight: nay, if that most instructive of our senses, *seeing*, were in any man a thousand or a hundred thousand times more acute than it is now by the best microscope, things several millions of times less than the smallest object of his sight now would then be visible to his naked eyes; and so he would come nearer the discovery of the texture and motion of the minute parts of corporeal things, and in many of them probably get ideas of their internal constitutions; but then he would be in a quite different world from other people; nothing would appear the same to him and others; the visible ideas of everything would be different; so that I doubt whether he and the rest of men could discourse concerning the objects of sight, or have any communication about colours, their appearances being so wholly different; and perhaps such a quickness and tenderness of sight could not endure bright sunshine, or so much as open daylight, nor take in but a very small part of any object at once, and that too only at a very near distance. And if, by the help of such microscopical eyes, (if I may so call them,) a man should penetrate farther than ordinary into the secret composition and radical texture of bodies, he

would not make any great advantage by the change, if such an acute sight would not serve to conduct him to the market and exchange, if he could not see things he was to avoid at a convenient distance, or distinguish things he was to do with, by those sensible qualities others do. He that was sharp-sighted enough to see the configuration of the minute particles of the spring of a clock, and observe on what peculiar structure and impulse its elastic motion depends, would no doubt discover something very admirable ; but if eyes so framed could not view at once the hand and the characters of the hour-plate, and thereby discover at a distance what o'clock it was, their owner could not be much benefited by that acuteness, which, whilst it discovered the secret contrivance of the parts of the machine, made him lose its use.

LESSON 11.—*Our Senses, and the Natural Objects by which they are surrounded.*

Nor is it merely our perceptive faculties which have a reference to our situation. The external objects with which we are surrounded are so accommodated to our capacities of enjoyment, and the relations which exist between our frame and that of external nature are so numerous, in comparison of what we perceive in the case of other animals, as to authorize us to conclude, that it was chiefly with a view to our happiness and improvement that the arrangements of this lower world were made. The subject is so infinite, that I should lose myself if I attempted any illustration of it. I shall content myself with mentioning the innumerable relations between our senses and the natural objects with which we are surrounded ; between the smell and the perfumes of the vegetable world ; between the taste and the endless

profusion of luxuries which the earth, the air, and the waters afford ; between the ear and the melodies of the birds ; between the eye and all the beauties and glories of the visible création. There is something, I think, peculiarly remarkable in the adaptation of the music of birds to the human ear. It seems to give pleasure to none of the quadrupeds ; nor is it even certain if the music of one species of birds gives pleasure to another ; for it has been asserted by some late naturalists, that those of them that are most remarkable for their powers of imitation (the linnet for example), are as apt to imitate sounds which are harsh and disagreeable as the most exquisite tones of music. But man receives pleasure from them all ; and the variety of their notes would seem almost to have been bestowed on them to form a concert for the gratification of his ear.

Up springs the lark—

Shrill-voiced and loud, the messenger of morn :
Ere yet the shadows fly, he mounting sings
Amid the dawning clouds, and from their haunts
Calls up the tuneful nations. Every copse
Deep tangled, tree irregular, and bush
Bending with dewy moisture, o'er the heads
Of the coy quiristers that lodge within,
Are prodigal of harmony. The thrush
And woodlark, o'er the kind contending throng
Superior heard, run through the sweetest length
Of notes ; when listening Philomela deigns
To let them joy, and purposes in thought
Elate, to make her night excel their day.
The blackbird whistles from the thorny brake,
The mellow bullfinch answers from the grove ;
Nor are the linnets, o'er the flowery furze
Poured out profusely, silent. Joined to these,
Innumerable songsters, in the freshening shade
Of new-sprung leaves, their modulations mix

Mellifluous. The jay, the rook, the daw,
And each harsh pipe, discordant heard alone,
Aid the full concert, while the stock-dove breathes
A melancholy murmur through the whole.

Some naturalists have taken notice, as a curious circumstance, of that instinct which attracts the different tribes of singing birds to the habitations of men. If there is a cottage in a forest, they all assemble in its neighbourhood. A very ingenious author, M. de St. Pierre, tells us that he travelled more than six hundred leagues in the forests of Russia without seeing any small birds, excepting in the neighbourhood of the villages. He mentions likewise, that when he was in Russian Finland, he sometimes travelled twenty leagues in a day without meeting either with villages or birds. Wherever they perceived the latter they were sure that they were near an inhabited country. Garcilasso de la Vega informs us, that his father, having been detached from Peru with a company of Spaniards, to make discoveries beyond the Cordilleras, was in danger of perishing from hunger amidst their valleys and quagmires, till at last he perceived a flight of parrots, which made him suspect that he was near the habitations of men. He accordingly followed the direction in which they flew, and came at last, after incredible hardships, to an Indian settlement.

It has also been observed, that the musical powers of which I have been speaking are confined to the birds which inhabit the fields and the woods. They would have been thrown away on those tribes which frequent the ocean, not only as they are removed from the ordinary haunts of men, but as the songs which are the most pleasing to the ear would have been lost amidst the noise of that turbulent element. Such birds have in general

piercing scream, by which they are enabled to make themselves mutually heard, notwithstanding the noise of the wind and waters.

LESSON 12.—*The Voice of Nature.*

When the principles of our nature are allowed to follow their own course, without being diverted from it by the prejudices of superstition or of false philosophy, they produce their proper effect on the mind of the uncultivated savage, as much as on that of the enlightened citizen. “How do you know,” said a traveller to a poor Arab of the desert, “that there is a God?” “In the same manner,” he replied, “that I trace the footsteps of an animal by the prints which it leaves upon the sand.”—“Is it not fitting,” said a savage of Sumatra to his companion, showing him a watch that had been made in Europe, “that a people such as we should be the slaves of a nation capable of forming such a machine? The sun,” he added, “is a machine of the same nature.” “And who winds him up?” said his companion. “Who,” replied he, “but Allah!”

If any exception to the universality of these religious impressions among mankind is to be found, it is not among savages we are to look for it, but in populous and commercial and artificial societies of men, where the voice of nature is drowned amid the bustle of business or the hurry of dissipation; where our earliest and most susceptible years are passed among the productions of human art, and the attention is diverted from those physical appearances which are stamped with the obvious marks of divine power and wisdom. Nothing, in truth, banishes moral impressions from the thoughts so much as the artificial objects with which we are everywhere surrounded

in populous and cultivated countries, particularly in large commercial cities; because the curiosity is too deeply engrossed by the productions of human skill and industry to have leisure to follow its *natural* direction. Hence it is that such impressions, however long banished from the mind, never fail to revive when we retire from the haunts of men to converse with nature in solitude. What we call the love of nature is in fact the love and admiration of the Deity. The enthusiasm with which some men survey the endless vicissitudes which the spectacle of the universe exhibits, is nothing else than the devotional temper moderated and repressed by the slight veil which sensible objects interpose between us and their Author. In those deep and savage recesses where human art has never trod, this veil is in some measure removed; everything around us appears unchanged and fresh from the hand of the Creator, and we seem to be conscious of his more immediate presence.

LESSON 13.—*The Conjugal Relation.*

It is the *conjugal relation* of which I speak,—a relation of which the duties, like the duties of all our other reciprocal affinities, however minutely divided and subdivided, are involved in the simple obligation to make those who are the objects of it *as happy as it is in our power to make them*.

In these few simple words, however, what a complication of duties is involved,—of duties which it is less easy for the ethical inquirer to state and define, than for the heart which feels affection to exercise them all with instant readiness. He who loves sincerely the object of any one of those relations which bind us together in amity, and who is wise enough to discern the difference of con-

ferring momentary gratification, which may produce more misery than happiness, and of conferring that which is not merely present happiness, but a source of future enjoyment, needs no rule of duty, as far at least as relates to that single individual, for the direction of a conduct of which love itself, unaided by any other guidance, will be a quick and vigilant director.

The husband should have then, as his great object and rule of conduct, the happiness of the wife. Of that happiness, the confidence in *his* affection is the chief element ; and the proofs of this affection on his part, therefore, constitute his chief duty ;—an affection that is not lavish of caresses only, as if these were the only demonstrations of love, but of that respect which distinguishes love as a *principle*, from that brief passion which assumes, and only assumes, the name ;—a respect which consults the judgment as well as the wishes of the object beloved,—which considers *her* who is worthy of being taken to the heart, as worthy of being admitted to all the counsels of the heart. If there are any delights of which he feels the value as essential to his own happiness ; if his soul be sensible to the charms of literary excellence ; and if he considers the improvement of his own understanding and the cultivation of his own taste as a duty, and one of the most delightful duties of an intellectual being ; he will not consider it as a duty or a delight that belongs only to man, but will feel it more delightful as there is now another soul that may share with him all the pleasure of the progress. To love the happiness of her whose happiness is in his affection, is of course to be conjugally faithful : but it is more than to be merely faithful ; it is not to allow room even for a doubt as to that fidelity, at least

for such a doubt as a reasonable mind might form. It is truly to love her best : but it is also to seem to feel that love which is truly felt.

As the happiness of the wife is the rule of conjugal duty to the husband, the happiness of the husband is in like manner the rule of conjugal duty to the wife. There is no human being whose affection is to be to her like his affection, as there is no happiness which is to be to her like the happiness which he enjoys. All that I have said of the moral obligation of the husband, then, is not less applicable to her duty : but though the gentle duties belong to both, it is to her province that they more especially belong ; because she is at once best fitted by nature for the ministry of tender courtesies, and best exercised in the offices that inspire them. While man is occupied in other cares during the business of the day, the business of *her* day is but the continued discharge of many little duties that have a direct relation to wedlock, in the common household which it has formed. He must often forget her, or be useless to the world ; she is most useful to the world by remembering him. From the tumultuous scenes which agitate many of his hours, he returns to the calm scene where peace awaits him, and happiness is sure to await him—because she is there waiting, whose smile is peace, and whose very presence is more than happiness to his heart.

LESSON 14.—*Providence proved from Animal Instinct.*

I must confess I am infinitely delighted with those speculations of nature which are to be made in a country life : and as my reading has very much lain among books of natural history, I cannot forbear recollecting

upon this occasion the several remarks which I have met with in authors, and comparing them with what falls under my own observation ; the arguments for Providence, drawn from the natural history of animals, being in my opinion demonstrative.

The make of every kind of animal is different from that of every other kind ; and yet there is not the least turn in the muscles or twist in the fibres of any one, which does not render them more proper for that particular animal's way of life than any other cast or texture of them would have been.

The most violent appetites in all creatures are lust and hunger : the first is a perpetual call upon them to propagate their kind ; the latter to preserve themselves.

It is astonishing to consider the different degrees of care that descend from the parent of the young, so far as is absolutely necessary for the leaving a posterity. Some creatures cast their eggs as chance directs them, and think of them no further ; as insects, and several kinds of fish : others, of a nicer frame, find out proper beds to deposit them in, and there leave them ; as the serpent, the crocodile, and the ostrich : others hatch their eggs, and tend the birth until it is able to shift for itself.

What can we call the principle which directs every different kind of bird to observe a particular plan in the structure of its nest, and directs all of the same species to work after the same model ? It cannot be imitation ; for, though you hatch a crow under a hen, and never let it see any of the works of its own kind, the nest it makes shall be the same, to the laying of a stick, with all the nests of the same species. It cannot be reason ; for were animals endued with it to as great a degree as man, then their buildings would be as different as ours,

according to the different conveniencies that they would propose to themselves.

Is it not remarkable, that the same temperate weather which raises a genial warmth in animals, should cover the trees with leaves, and the fields with grass, for their security and concealment ; and produce such infinite swarms of insects for the support and sustenance of their respective broods ?

Is it not wonderful that the love of the parent should be so violent while it lasts, and that it should last no longer than is necessary for the preservation of the young ? The violence of this natural love is exemplified by a very barbarous experiment ; which I shall quote at length, as I find it in an excellent author, and hope my readers will pardon the mentioning such an instance of cruelty, because there is nothing that can so effectually show the strength of that principle in animals of which I am here speaking. “ A person who was well skilled in dissections opened a bitch, and as she lay in the most exquisite torture, offered her one of her young puppies, which she immediately feil a licking ; and for the time seemed insensible of her pain : on its removal, she kept her eye fixed on it, and began a wailing sort of cry, which seemed rather to proceed from the loss of her young one than from the sense of her own torments.”

But, notwithstanding this natural love in brutes is much more violent and intense than in rational creatures, Providence has taken care that it should be no longer troublesome to the parent than it is useful to the young ; for so soon as the wants of the latter cease, the mother withdraws her fondness, and leaves them to provide for themselves : and what is a very remarkable circumstance in this part of instinct, we find that the love of the parent

may be lengthened out beyond its usual time, if the preservation of the species requires it ; as we may see in birds that drive away their young as soon as they are able to get their livelihood, but continue to feed them if they are tied to the nest, or confined within a cage, or by any other means appear to be out of a condition of supplying their own necessities.

This natural love is not observed in animals to ascend from the young to the parent, which is not at all necessary for the continuance of the species ; nor indeed in reasonable creatures does it rise in any proportion as it spreads itself downwards ; for in all family affection, we find protection granted and favours bestowed are greater motives to love and tenderness, than safety, benefits, or life received.

One would wonder to hear sceptical men disputing for the reason of animals, and telling us it is only our pride and prejudices that will not allow them the use of that faculty.

Reason shows itself in all occurrences of life ; whereas the brute makes no discovery of such a talent, but what immediately regards his own preservation or the continuance of his species.

The wisdom of animals is confined to a few particulars, and lies in a very narrow compass. Take a brute out of its instinct, and you find him wholly deprived of understanding. To use an instance that comes often under observation : With what caution does the hen provide herself a nest in places unfrequented, and free from noise and disturbance ! When she has laid her eggs in such a manner that she can cover them, what care does she take in turning them frequently, that all parts may partake of the vital warmth ! When she leaves them, to

provide for her necessary sustenance, how punctually does she return, before they have time to cool and become incapable of producing an animal ! In the summer you see her giving herself greater freedoms, and quitting her care for above two hours together ; but in winter, when the rigour of the season would chill the principle of life, and destroy the young one, she grows more assiduous in her attendance, and stays away but half the time. When the birth approaches, with how much nicety and attention does she help the chick to break its prison ! Not to take notice of her covering it from the injuries of the weather, providing its nourishment, and teaching it to help itself ; nor to mention her forsaking the nest if, after the usual time of reckoning, the young one does not make its appearance. A chemical operation could not be followed with greater art or diligence than is seen in the hatching of a chick, though there are many other birds that show an infinitely greater sagacity in all the forementioned particulars.

But at the same time the hen, that has all this seeming ingenuity, (which is indeed absolutely necessary for the propagation of her species,) considered in other respects, is without the least glimmerings of thought or common sense. She mistakes a piece of chalk for an egg, and sits upon it in the same manner : she is insensible of any increase or diminution in the number of those she lays : she does not distinguish between her own and those of another species ; and when the birth appears of never so different a bird, will cherish it for her own. In all these circumstances, which do not carry an immediate regard to the subsistence of herself or her species, she is a very idiot.

There is not, in my opinion, anything more mysteri-

ous in nature than this instinct in animals, which, thus rises above reason, and falls infinitely short of it. It cannot be accounted for by any properties in matter, and at the same time works after so odd a manner, that one cannot think it the faculty of an intellectual being. For my own part, I look upon it as upon the principle of gravitation in bodies, which is not to be explained by any known qualities inherent in the bodies themselves, nor from any laws of mechanism ; but, according to the best notions of the greatest philosophers, is an immediate impression from the first Mover, and the divine energy acting in the creatures.

LESSON 15.—*On the Neglect of Early Improvement.*

There is not a greater inlet to misery and vices of all kinds, than the not knowing how to pass our vacant hours. For what remains to be done, when the first part of the lives of those who are not brought up to any manual employment, has slipped away without an acquired relish for reading, or taste for other rational satisfactions ?—That they should pursue their pleasures.—But, religion apart, common prudence will warn them to tie up the wheel as they begin to go down the hill of life.

Shall they then apply themselves to their studies ? Alas ! the seed-time is already past : the enterprising and spirited ardour of youth being over, without having been applied to those valuable purposes for which it was given, all ambition of excelling upon generous and laudable schemes quite stagnates. If they have not some poor expedient to deceive the time, or, to speak more properly, to deceive themselves, the length of a day will seem tedious to those who perhaps have the unreasonableness to complain of the shortness of life in general.

When the former part of our life has been nothing but vanity, the latter end of it can be nothing but vexation. In short, we must be miserable without some employment to fix, or some amusement to dissipate our thoughts: and as we can neither command amusement in all places, nor relish it at all times, there is an absolute necessity for employment. We may pursue this or that new pleasure; we may be fond, for a while, of a new acquisition; but, when the graces of novelty are worn off, and the briskness of our first desire is over, the transition is very quick and sudden, from an eager fondness to a cool indifference. Hence there is a restless agitation in our minds, still craving something new, still unsatisfied with it when possessed: still melancholy increases as we advance in years, like shadows lengthening toward the close of day.

Hence it is, that men of this stamp are continually complaining that the times are altered for the worse; because the sprightliness of youth represented everything in the most engaging light. When men are in high good humour with themselves, they are apt to be so with all around them; the face of nature brightens up, and the sun shines with a more agreeable lustre: but when old age has cut them off from the enjoyment of false pleasures, and habitual vice has given them a distaste for the only true and lasting delights; when a retrospect of their past lives presents nothing to view but one wide tract of uncultivated ground; a soul distempered with spleen, remorse, and insensibility of each rational satisfaction, darkens and discolours every object. The change is not in the times, but in them who have been forsaken by those gratifications which they would not forsake.

How much otherwise is it with those who have trea-

sured up an inexhaustible fund of knowledge ! When a man has been laying out that time in the pursuit of some great and important truth, which others waste in a circle of gay follies, he is conscious of having acted up to the dignity of his nature ; and from that consciousness there results that serene complacency which, though not so violent, is much preferable to the pleasures of animal life. He can travel on from strength to strength ; for in literature, as in war, each new conquest he gains empowers him to push his conquests still further, and to enlarge the empire of reason. Thus he is ever in a progressive state, still making new acquirements, still animated with hopes of future discoveries.

LESSON 16.—*The First Cause.*

It is scarcely possible to conceive a man capable of reflection who has not at times proposed to himself the following questions. Whence am I ? and whence the innumerable tribes of plants and of animals which I see in constant succession rising into existence ? Whence the beautiful fabric of this universe ? and by what wise and powerful Being were the principles of my constitution so wonderfully adapted to the various objects around me ? To whom am I indebted for the distinguished rank which I hold in the creation, and for the numberless blessings which have fallen to my lot ? and what return shall I make for this profusion of goodness ? The only return I can make is by accommodating my conduct to the will of my Creator, and by fulfilling as far as I am able the purpose of my being. But how are these purposes to be discovered ? The analogy of the lower animals gives me here no information. They too, as well as

I, are endowed with various instincts and appetites ; but their nature on the whole exhibits a striking contrast to mine. They are impelled by a blind determination towards their proper objects, and seem to obey the law of their nature in yielding to every principle which excites them to action. In my own species alone the case is different. Every individual chooses for himself the ends of his pursuit, and chooses the means which he is to employ for attaining them. Are all these elections equally good ? and is there no law prescribed to man ? I feel the reverse. I am able to distinguish what is right from what is wrong ; what is honourable and becoming from what is unworthy and base ; what is laudable and meritorious from what is shameful and criminal. Here then are plain indications of the conduct I ought to pursue. There is a law prescribed to man as well as to the brutes. The only difference is, that it depends on my own will whether I obey or disobey it. And shall I alone counteract the intentions of my Maker, by abusing that freedom of choice which he has been pleased to bestow on me, by raising me to the rank of rational and moral being ?

This is surely the language of nature ; and which could not fail to occur to every man capable of serious thought, were not the understanding and the moral feelings in some instances miserably perverted by religious and political prejudices, and in others by the false refinements of metaphysical theories. How callous must be that heart which does not echo back the reflections which Milton puts into the mouth of our first parent !—

“Thou sun, said I, fair light,
And thou enlightened earth, so fresh and gay,
Ye hills and dales, ye rivers, woods, and plains,
And ye that live and move, fair creatures, tell,

Tell, if you saw, how came I thus, how here.
 Not of myself ; by some great Maker then,
 In goodness, as in power pre-eminent :
 Tell me how I may know him, how adore,
 From whom I have, that thus I move and live,
 And feel that I am happier than I know."

In this manner, a consideration of the relation in which we stand to God must satisfy us that it is our duty, or (to vary our language) that it is morally right we should obey his will, as manifested by that inward monitor, established by himself as his vicegerent in our breast. Our moral powers give rise to religious sentiments, and these become, in their turn, the most powerful inducements to the practice of morality.

LESSON 17.—*Prejudice and Passion.*

The judgment is vitiated by want of due regulation ; and this may be ascribed chiefly to two sources,—prejudice and passion. Prejudice consists in the formation of opinions before the subject has been really examined. By means of this, the attention is misdirected, and the judgment biassed, in a manner of which the individual is often in a great measure unconscious. The highest degree of it is exemplified in that condition of the mind in which a man first forms an opinion which interest or inclination may have suggested ; then proceeds to collect arguments in support of it ; and concludes by reasoning himself into the belief of what he wishes to be true. It is thus that the judgment is apt to be misled, in a greater or less degree, by party spirit, and personal attachments or antipathies ; and it is clear that all such influence is directly opposed to its sound and healthy

exercise. The same observations apply to passion, or the influence exerted by the moral feelings. The most striking example of this is presented by that depraved condition of the mind which distorts the judgment in regard to the great principles of moral rectitude. "A man's understanding," says Mr. Locke, "seldom fails him in this part, unless his will would have it so : if he takes a wrong course, it is most commonly because he goes wilfully out of the way, or at least chooses to be bewildered ; and there are few, if any, who dreadfully mistake, that are willing to be right."

These facts are worthy of much consideration ; and they appear to be equally interesting to all classes of men, whatever may be the degree of their mental cultivation, and whatever the subjects are to which their attention is more particularly directed. There is one class of truths to which they apply with peculiar force, namely, those which relate to the moral government of God, and the condition of man as a responsible being. These great truths, and the evidence on which they are founded, are addressed to our judgment as rational beings ; they are pressed upon our attention as creatures destined for another state of existence : and the sacred duty from which no individual can be absolved, is a voluntary exercise of his thinking and reasoning powers,—it is solemnly, seriously, and deliberately to consider. On these subjects a man may frame any system for himself, and may rest in that system as truth : but the solemn inquiry is, not what opinions he has formed, but in what manner he has formed them. Has he approached the great inquiry with a sincere desire to discover the truth ; and has he brought to it a mind neither misled by prejudice nor distorted by the condition of his moral feelings ? has

he directed his attention to all the facts and evidences, with an intensity suited to their momentous importance ; and has he conducted the whole investigation with a deep and serious feeling, that it carries with it an interest which reaches into eternity ? Truth is immutable and eternal, but it may elude the frivolous or prejudiced inquirer ; and even when he thinks his conclusions are the result of much examination, he may be resting his highest concerns on delusion and falsehood.

The human mind indeed, even in its highest state of culture, has been found inadequate to the attainment of the true knowledge of the Deity ; but light from heaven has shone upon the scene of doubt and of darkness, which will conduct the humble inquirer through every difficulty, until he arrives at the full perception and commanding influence of the truth ;—of truth such as human intellect never could have reached, and which, to every one who receives it, brings its own evidence that it comes from God.

Finally, the sound exercise of judgment has a remarkable influence in producing and maintaining that tranquillity of mind which results from a due application of its powers, and a correct estimate of the relations of things. The want of this exercise leads a man to be unduly engrossed with the frivolities of life, unreasonably elated by its joys, and unreasonably depressed by its sorrows. A sound and well-regulated judgment tends to preserve from all such disproportioned pursuits and emotions. It does so, by leading us to view all present things in their true relations, to estimate aright their relative value, and to fix the degree of attention of which they are worthy : it does so, in a more especial manner, by leading us to compare the present life, which is so

rapidly passing over us, with the paramount importance and overwhelming interest of the life which is to come.

LESSON 18.—*The Pleasures of the Understanding.*

Having dwelt so long on the beneficent tendency of those laws which regulate the more essential interests of mankind, I must content myself with barely mentioning, before leaving this subject, the rich provision made for our enjoyment in the pleasures of the understanding, of the imagination, and of the heart. How delightful are the pursuits of science, how various, how inexhaustible ! How pure, how tranquil are the pleasures afforded by the fine arts ! How enlivening the charms of social intercourse ! How exquisite the endearments of affection ! How sublime the raptures of devotion ! The accommodation of our sensitive powers to the scene we occupy is still more wonderful ; inasmuch as, over and above the care which is taken for the preservation of our animal being, and the means provided for our intellectual and moral improvement, there appears to be a positive adaptation of our frame to the earth we inhabit ; an adaptation our Maker could destine for no other end but to multiply the sources of our enjoyment. Surely he might have contrived to enlighten the earth without displaying to our view the glories of the firmament. The day and the night might have regularly succeeded each other without our once having beheld the splendour of a morning sun, or the glow of an evening sky. The spring might have ministered to the fertility of summer and of autumn without scattering over the earth a profusion of flowers and blossoms, without refreshing the eye with

the soft verdure of the fields, or filling the woods with joy and melody.

Not content

With every food of life to nourish man,
Thou madest all nature beauty to his eye
And music to his ear.

“The whole frame of the universe,” says Epictetus, “is full of the goodness of God; and to be convinced of this important truth, nothing more is necessary than an attentive mind and a grateful heart.”

It is however true, as Dr. Paley has remarked, in by far the finest passage of his work on Moral Philosophy, that “the contemplation of universal nature rather bewilders the mind than affects it. There is always a bright spot in the prospect, upon which the eye rests; a single example perhaps, by which each man finds himself more convinced than by all others put together. I seem for my own part to see the benevolence of the Deity more clearly in the pleasure of very young children than in anything in the world. The pleasure of grown persons may be reckoned partly of their own procuring, especially if there has been any industry, or contrivance, or pursuit to come at them, or if they are founded, like music and painting, upon any qualification of their own acquiring. But the pleasures of a healthy infant are so manifestly provided for by another, and the benevolence of the provision is so unquestionable, that every child I see at its sport affords to my mind a kind of sensible evidence of the finger of God, and of the disposition which directs it. But the example which strikes each man most strongly is the true example for him, and hardly two minds hit upon the same; which shows the abundance of such examples about us.”

CHAPTER III.

DESCRIPTIVE PIECES.

LESSON 1.—*Revolutions and Changes of the Earth.*

MOTION and change seem absolutely necessary for the preservation of the corporeal world. In the whole universe, there is not the smallest particle in a constant and entire state of rest. Nothing is more easy than to be convinced of this, by attending to what passes on the globe we inhabit. The earth turns, every twenty-four hours, round its own axis; and by this motion all the points of its surface (except the poles) change place with more or less rapidity. Under the line, where this motion is the swiftest, everything moves more than two leagues in a minute, though it does not change its situation on the surface. But, besides this, the earth makes its annual revolution round the sun with so much velocity, that, according to the most moderate calculations, it goes 136 leagues in a minute, though its course is not perceptible. The motion of earthly bodies is more observable. Little rivulets unite and form greater: these in their turn form torrents and rivers, which are afterwards lost in the sea. This is not all: plants and animals everywhere require water to nourish them. The water rises in vapours, which form into clouds, and fall again in rain, snow, and fogs; and whatever is not transformed in its fall goes again into the sea, where the flux and reflux, storms, torrents, &c. keep the water in a continual motion. Neither is there any repose in our atmosphere. Between the tropics an east wind continually blows; and though in other places the motion

is not always perceptible, yet the barometers and thermometers prove that the air is never perfectly still. Meteors also, of every sort, show that nature is in constant action. The coat or surface of the earth is also subject to frequent revolutions. The hardest rocks split ; stones gradually wear and break ; some lands fall in, others are overflowed ; certain grounds rise, and others are overturned by earthquakes ; little hills are washed away by waters, valleys are filled up, marshes grow dry and are covered with trees ; the bottom of the sea becomes firm ground, &c. Light and darkness, cold and heat, drought and wet, succeed each other by turns. Lastly, the continual variations of heat occasion, every hour, changes which are often imperceptible. If we add to this the changes visible in animals, we may have some idea of the continual revolutions to which everything here is subject. It is said that a man daily loses about two ounces and a half in perspiration. It is replaced by other particles ; so that at the end of ten years a man's body is entirely changed. All animals and plants feed, grow, propagate, die, and corrupt.

Thus, everything on earth is in motion ; everything grows and decays by turns. In a word, to be born, and to die, is what continually passes on the theatre of the world. But this does not happen accidentally, or without order or design. Everything acts according to certain laws, which tend to certain ends. Everything combines, everything concurs, in the most perfect manner, to the glory of the Creator. All contribute to, all end in, the happiness of the universe. These continual revolutions are useful warnings to us. They teach us that this world cannot be our place of destination. When we consider the continual vicissitudes which all here

below must undergo, is it not the most affecting lesson for us on the vanity of all earthly things, on the uncertainty and shortness of life, on the necessity of a better state, an everlasting life in the world to come? Yes, everything points out to us our destination, and declares we are but sojourners and travellers on the earth.

With what consolation my soul is penetrated when, in the midst of the revolutions of the world, I lift up my eyes towards Thee, O Lord! towards Thee, who art both immutable and eternal! Let the mountains be shaken, and fall down; let the sea be troubled, and the waves roar; let all that is earthly be destroyed, and return to dust; still Thou art, and ever must be, invariably the same.

LESSON 2.—*Mont Blanc in the Gleam of Sunset.*

We arrived, before sundown, at the village of St. Martin, where we were to stay for the night. The evening being remarkably fine, we crossed the Arve on a beautiful bridge, and walked over to Salenche, a very considerable village opposite to St. Martin, and ascended a hill to view the effect of the sun's declining light upon Mont Blanc. The scene was truly grand. The broad range of the mountain was fully before us, of a pure and almost glowing white, apparently to its very base; and which, contrasted with the brown tints of the adjoining mountains, greatly heightened the novelty of the scene. We could scarcely avoid the conclusion that this vast pile of snow was very near us, and yet its base was not less than fifteen, and its summit probably more than twenty miles from the place where we stood. The varying rays of light produced by reflection from the snow, passing, as the sun's rays declined, from a brilliant white through

purple and pink, and ending in the gentle light which the snow gives after the sun has set, afforded an exhibition in optics upon a scale of grandeur which no other region in the world could probably excel. Never in my life have my feelings been so powerfully affected by mere scenery as they were in this day's excursion. The excitement, though attended by sensations awfully impressive, is nevertheless so finely attempered by the glow of novelty, incessantly mingled with astonishment and admiration, as to produce on the whole a feast of delight.

A few years ago I stood upon Table Rock, and placed my cane in the descending flood of Niagara. Its tremendous roar almost entirely precluded conversation with the friend at my side ; while its whirlwind of mist and foam filled the air to a great distance around me. The rainbow sported in its bosom ; the gulf below exhibited the wild fury of an immense boiling caldron ; while the rapids above, for the space of nearly a mile, appeared like a mountain of billows chafing and dashing against each other with thundering impetuosity, in their eager strife to gain the precipice, and take the awful leap. In contemplating this scene, my imagination and my heart were filled with sublime and tender emotions. The soul seemed to be brought a step nearer to the presence of that incomprehensible Being, whose spirit dwelt in every feature of the cataract, and directed all its amazing energies. Yet in the scenery of this day there was more of a pervading sense of awful and unlimited grandeur ; mountain piled upon mountain in endless continuity throughout the whole extent, and crowned by the brightest effulgence of an evening sun upon the everlasting snows of the highest pinnacle of Europe.

LESSON 3.—*Earthquake at Calabria, in 1638.*

An account of this dreadful earthquake is given by the celebrated father Kircher. It happened whilst he was on his journey to visit Mount Etna, and the rest of the wonders that lie towards the south of Italy.

“ Having hired a boat, in company with four more, (two friars of the order of St. Francis, and two seculars,) we launched from the harbour of Messina in Sicily, and arrived the same day at the promontory of Pelorus. Our destination was for the city of Euphæmia in Calabria, where we had some business to transact, and where we designed to tarry for some time. However Providence seemed willing to cross our design; for we were obliged to continue three days at Pelorus, on account of the weather; and though we often put out to sea, yet we were as often driven back. At length, wearied with the delay, we resolved to prosecute our voyage; and, although the sea appeared to be uncommonly agitated, we ventured forward. The gulf of Charybdis, which we approached, seemed whirled round in such a manner as to form a vast hollow, verging to a point in the centre. Proceeding onward, and turning my eyes to Etna, I saw it cast forth large volumes of smoke, of mountainous size, which entirely covered the island, and blotted out the very shores from my view. This, together with the dreadful noise, and the sulphurous stench which was strongly perceived, filled me with apprehensions that some more dreadful calamity was impending. The sea itself seemed to wear a very unusual appearance: they who have seen a lake in a violent shower of rain, covered all over with bubbles, will conceive some idea of its agitations. My surprise was still increased by the calmness and serenity of the weather; not a breeze, not a

cloud, which might be supposed to put all nature thus into motion. I therefore warned my companions that an earthquake was approaching; and after some time, making for the shore with all possible diligence, we landed at Tropæa, happy and thankful for having escaped the threatening dangers of the sea.

“But our triumphs at land were of short duration; for we had scarcely arrived at the Jesuits’ college in that city, when our ears were stunned with a horrid sound, resembling that of an infinite number of chariots driven fiercely forward; the wheels rattling, and the thongs cracking. Soon after this a most dreadful earthquake ensued, so that the whole tract upon which we stood seemed to vibrate, as if we were in the scale of a balance that continued wavering. This motion, however, soon grew more violent; and being no longer able to keep my legs, I was thrown prostrate upon the ground. In the meantime, the universal ruin round me redoubled my amazement. The crash of falling houses, the tottering of towers, and the groans of the dying, all contributed to increase my terror and despair. On every side of me I saw nothing but a scene of ruin; and danger threatening wherever I should fly. I recommended myself to God, as my last great refuge. At that hour, O how vain was every sublunary happiness! Wealth, honour, empire, wisdom, all mere useless sounds, and as empty as the bubbles of the deep! Just standing on the threshold of eternity, nothing but God was my pleasure; and the nearer I approached, I only loved him the more. After some time however, finding that I remained unhurt amidst the general concussion, I resolved to venture for safety; and running as fast as I could, I reached the shore, but almost terrified out of my reason. I did not

search long here before I found the boat in which I had landed; and my companions also, whose terrors were even greater than mine. Our meeting was not of that kind where every one is desirous of telling his own happy escape; it was all silence, and a gloomy dread of impending terrors.

“Leaving this seat of desolation, we prosecuted our voyage along the coast; and the next day came to Rochetta, where we landed, although the earth still continued in violent agitation. But we had scarcely arrived at our inn, when we were once more obliged to return to the boat; and in about half an hour, we saw the greater part of the town, and the inn at which we had set up, falling to the ground, and burying the inhabitants beneath the ruins.

“In this manner, proceeding onward in our little vessel, finding no safety on land, and yet from the smallness of our boat having but a very dangerous continuance at sea, we at length landed at Lopizium, a castle midway between Tropæa and Euphæmia, the city to which, as I said before, we were bound. Here, wherever I turned my eyes, nothing but scenes of ruin and horror appeared: towns and castles levelled to the ground; Strombolo, though at sixty miles distance, belching forth flames in an unusual manner, and with a noise which I could distinctly hear. But my attention was quickly turned from more remote to contiguous danger. The rumbling sound of an approaching earthquake, which we by this time were grown acquainted with, alarmed us for the consequences: it every moment seemed to grow louder, and to approach nearer. The place on which we stood now began to shake most dreadfully; so that being unable to stand, my compa-

nions and I caught hold of whatever shrub grew next to us, and supported ourselves in that manner.

“After some time, this violent paroxysm ceasing, we again stood up in order to prosecute our voyage to Euphæmia, which lay within sight. In the meantime, while we were preparing for this purpose, I turned my eyes towards the city, but could see only a frightful dark cloud, that seemed to rest upon the place. This the more surprised us as the weather was so very serene. We waited therefore till the cloud had passed away; then turning to look for the city, it was totally sunk. Wonderful to tell! nothing but a dismal and putrid lake was seen where it stood. We looked about to find some one that could tell us of its sad catastrophe, but could see no person. All was become a melancholy solitude, a scene of hideous desolation. Thus proceeding pensively along in quest of some human being that could give us a little information, we at length saw a boy sitting by the shore, and appearing stupified with terror. Of him therefore we inquired concerning the fate of the city; but he could not be prevailed on to give us an answer. We entreated him, with every expression of tenderness and pity, to tell us; but his senses were quite wrapped up in the contemplation of the danger he had escaped. We offered him some victuals, but he seemed to loathe the sight. We still persisted in our offices of kindness; but he only pointed to the place of the city, like one out of his senses; and then running up into the woods, was never heard of after. Such was the fate of the city of Euphæmia. As we continued our melancholy course along the shore, the whole coast, for the space of two hundred miles, presented nothing but the remains of cities; and men scattered, without a habita-

tion, over the fields. Proceeding thus along, we at length ended our distressful voyage by arriving at Naples, after having escaped a thousand dangers both at sea and land."

LESSON 4.—*Earthquake at Caraccas.*

It was Holy Thursday, and a great part of the population was assembled in the churches. Nothing seemed to presage the calamities of the day. At seven minutes after four in the afternoon, the first shock was felt: it was sufficiently powerful to make the bells of the churches toll; it lasted five or six seconds, during which time the ground was in a continual undulating movement, and seemed to heave up like a boiling liquid. The danger was thought to be past, when a tremendous subterraneous noise was heard, resembling the rolling of thunder, but louder and of longer continuance than that heard within the tropics in time of storms. This noise preceded a perpendicular motion of three or four seconds, followed by an undulatory movement somewhat longer. The shocks were in opposite directions, from north to south, and from east to west. Nothing could resist the movement from beneath upward, and the undulations crossing each other. The town of Caraccas was entirely overthrown. Thousands of the inhabitants (between 9 and 10,000) were buried under the ruins of the houses and churches. The procession had not yet set out, but the crowd was so great in the churches, that nearly 3 or 4,000 persons were crushed by the fall of their vaulted roofs. The explosion was stronger toward the north, in that part of the town situate nearest the mountain of Avila and the Silla. The churches of La Trinidad and Alta Gracia, which were more than 150 feet high,

and the naves of which were supported by pillars of twelve or fifteen feet in diameter, left a mass of ruins, scarcely exceeding five or six feet in elevation. The sinking of the ruins has been so considerable, that there now scarcely remain any vestiges of pillars or columns. The barracks situate further north of the church of the Trinity, on the road from the customhouse de la Pastora, almost entirely disappeared. A regiment of troops of the line, that was assembled under arms, ready to join the procession, was, with the exception of a few men, buried under the ruins of this great edifice. Nine tenths of the fine town of Caraccas were entirely destroyed. The walls of the houses that were not thrown down, as those of the street San Juan, near the Capuchin hospital, were cracked in such a manner, that it was impossible to run the risk of inhabiting them. The effects of the earthquake were somewhat less violent in the western and southern parts of the city, between the principal square and the ravine of Caraguata. There the cathedral, supported by enormous buttresses, remains standing. Estimating at 9 or 10,000 the number of the dead in the city of Caraccas, we do not include those unhappy persons who, dangerously wounded, perished several months after for want of food and proper care. The night of Holy Thursday presented the most distressing scene of desolation and sorrow. A thick cloud of dust, which, rising above the ruins, darkened the sky like a fog, had settled on the ground. No shock was felt, and never was a night more calm or more serene. The moon, nearly full, illumined the rounded domes of the Silla, and the aspect of the sky formed a perfect contrast to that of the earth, covered with the dead, and heaped with ruins. Mothers were seen bear-

ing in their arms their children, whom they hoped to recal to life. Desolate families wandered through the city, seeking a brother, a husband, a friend, of whose fate they were ignorant, and whom they believed to be lost in the crowd. The people pressed along the streets, which could no more be recognized but by long lines of ruins. All the calamities experienced in the great catastrophe of Lisbon, Messina, Lima, and Riobamba, were renewed on the fatal day of the 26th of March, 1812. The wounded, buried under the ruins, implored by their cries the help of the passers by; and nearly two thousand were dug out. Never was pity displayed in a more affecting manner; never had it been seen more ingeniously active, than in the efforts employed to save the miserable victims whose groans reached the ear. Implements for digging and clearing away the ruins were entirely wanting; and the people were obliged to use their bare hands to disinter the living.

The wounded, as well as the sick who had escaped from the hospitals, were laid on the banks of the small river Guayra. They found no shelter but the foliage of trees. Beds, linen to dress the wounds, instruments of surgery, medicines, and objects of the most urgent necessity, were buried under the ruins. Everything, even food, was wanting during the first days. Water became alike scarce in the interior of the city. The commotion had rent the pipes of the fountains; the falling in of the earth had choked up the springs that supplied them; and it became necessary, in order to have water, to go down to the river Guayra, which was considerably swelled; and then vessels to convey the water were wanting. There remained a duty to be fulfilled toward the dead, enjoined at once by piety and the dread of infection. It

being impossible to inter so many thousand corpses, half buried under the ruins, commissaries were appointed to burn the bodies; and for this purpose funeral piles were erected between the heaps of ruins. This ceremony lasted several days. Amid so many public calamities, the people devoted themselves to those religious duties which they thought were the most fitted to appease the wrath of heaven. Some, assembling in processions, sung funeral hymns; others, in a state of distraction, confessed themselves aloud in the streets. In this town was now repeated what had been remarked in the province of Quito, after the tremendous earthquake of 1797; a number of marriages were contracted between persons who had neglected for many years to sanction their union by the sacerdotal benediction. Children found parents by whom they had never till then been acknowledged; restitutions were promised by persons who had never been accused of fraud; and families who had long been enemies were drawn together by the tie of common calamity. If this feeling seemed to calm the passions of some, and open the heart to pity, it had a contrary effect on others, rendering them more rigid and inhuman. In great calamities, vulgar minds preserve still less goodness than strength. Misfortune acts in the same manner as the pursuits of literature and the study of nature; their happy influence is felt only by a few, giving more ardour to sentiment, more elevation to the thoughts, and more benevolence to the disposition.

LESSON 5.—*Earthquake at Caraccas, (concluded.)*

Fifteen or eighteen hours after the great catastrophe, the ground remained tranquil. The night, as we have

already observed, was fine and calm ; and the commotions did not recommence till after the 27th. They were then attended with a very loud and long-continued subterranean noise. The inhabitants of Caraccas wandered into the country ; but the villages and farms having suffered as much as the town, they could find no shelter till they were beyond the mountains of Los Teques, in the valleys of Aragua, and in the Savannas. No less than fifteen oscillations were often felt in one day. On the 5th of April there was almost as violent an earthquake as that which overthrew the capital. During several hours, the ground was in a state of perpetual undulation. Large masses of earth fell in the mountains ; and enormous rocks were detached from the Silla of Caraccas. It was even asserted, and this opinion prevails still in the country, that the two domes of the Silla sunk fifty or sixty toises ; but this assertion is founded on no measurement whatever. I am informed, that in the province of Quito also, the people, at every period of great commotion, imagine that the volcano of Tunguragua is diminished in height.

While violent commotions were felt at the same time in the valley of the Mississippi, in the island of St. Vincent, and in the province of Venezuela, the inhabitants of Caraccas and Calabozo, situate in the midst of the Steppes and on the borders of the Rio Apura, in a space of 4000 square leagues, were terrified on the 30th of April 1812, by a subterraneous noise, which resembled frequent discharges of the largest cannon. This noise began at two in the morning. It was accompanied by no shock, and, which is very remarkable, it was as loud on the coast as at eighty leagues distance inland. It was everywhere believed to be transmitted through the air ;

and was so far from being thought a subterraneous noise, that at Caraccas, as well as Calabozo, preparations were made to put the place into a state of defence against an enemy, who seemed to be advancing with heavy artillery. Mr. Palacio, crossing the Rio Apura below the Orivante, near the junction of the Rio Nula, was told by the inhabitants, that the firing of cannon had been heard as distinctly at the western extremity of the province of Varinas as at the port of La Guayra, to the north of the chain of the coast.

The day on which the inhabitants of Terra Firma were alarmed by this subterraneous noise, was that on which happened the great eruption of the volcano in the island of St. Vincent. This mountain, near 500 toises high, had not thrown out any lava since the year 1718. Scarcely was any smoke perceived to issue from its top, when in the month of May, 1811, frequent shocks announced that the volcanic fire was either rekindled, or directed anew toward that part of the West Indies. The first eruption did not take place till the 27th of April 1812, at noon. It was only an ejection of ashes, but attended with a tremendous noise. On the 30th the lava passed the brink of the crater, and after a course of four hours reached the sea. The noise of the explosion ‘resembled that of alternate discharges of very large cannon and of musketry; and, which is well worthy of remark, it seemed much louder at sea, at a great distance from the island, than in sight of land and near the burning volcano.’

The distance in a straight line, from the volcano of St. Vincent to the Rio Apura, near the mouth of the Nula, is 210 leagues. The explosions were consequently heard at a distance equal to that between Vesuvius

and Paris. This phenomenon, connected with a great number of facts observed in the Cordilleras of the Andes, shews how much more extensive the subterranean sphere of activity of a volcano is, than we are disposed to admit from the small changes effected at the surface of the globe. The detonations heard during a whole day together in the new world, 80, 100, or even 200 leagues distant from a crater, do not reach us by the propagation of the sound through the air; they are transmitted to us by the ground.

The moral, or rather political effects of the earthquake of 1812, were scarcely less disastrous than the actual destruction of life which it occasioned. The provinces of Venezuela had on the 11th of July 1811, by a public declaration of independence, thrown off the yoke of Spain. On the 23d of December the new constitution had been agreed to by the congress, and its first session was to have been held at Valencia in March 1812. The cause wore at this period every appearance of prosperity. At the very moment of the earthquake, a battalion of troops under Colonel Xalon, stationed at Barquesimeto, were preparing to march, in order to attack the royalists of Coro, when the barracks were thrown down, and a great part of the soldiers were buried under the ruins, their commander being severely wounded. The clergy of Caraccas, who had been shorn of some of their privileges by the new constitution, immediately proclaimed that the earthquake was an evidence of the wrath of the Almighty. A universal panic seized the minds of the people; and, unable to withstand the tide of public opinion which now set in against them, the congress adjourned their sessions. Miranda, on whom the supreme command of the army had devolved, found

himself obliged to capitulate,—on honourable terms indeed, but which were most atrociously violated by the royalists. Cumana and Barcelona submitted in consequence to the authority of the infamous Monteverde, and the old government was without difficulty completely re-established throughout Venezuela. Every gaol was filled with the patriots; and the horrible atrocities acted in Caraccas, with the avowed object of intimidating the insurgents throughout the Spanish colonies, led to that re-action which has happily succeeded in the establishment of the national independence. After the recital of so many calamities, it is soothing to repose the imagination on consolatory remembrances. When the great catastrophe of Caraccas was known in the United States, the congress, assembled at Washington, unanimously agreed that five ships laden with flour should be sent to the coast of Venezuela, to be distributed among the poorest inhabitants. So generous a supply was received with the warmest gratitude; and this solemn act of a free people, this mark of a national interest, of which the increasing civilization of our old Europe displays but few recent examples, seemed to be a valuable pledge of the mutual benevolence that ought for ever to unite the nations of both Americas.

LESSON 6.—*Works of Art imbedded in Volcanic Irruptions.*

When the Etnean lava-current of 1669 covered fourteen towns and villages, and part of the city of Catania, it did not melt down a great number of statues and other articles in the vaults of Catania; and at the depth of thirty-five feet in the same current on the site of

Mompeliere, one of the buried towns, the bell of a church and some statues were found uninjured.

We remarked that in many countries which have been peopled from remote ages by civilized nations, and have been at the same time the theatres of volcanic action, there must be innumerable monuments of the highest value to the historian, which continue unobserved "because they have not been searched for." But we omitted to describe in detail a splendid example of several buried cities in central India, which might probably be made to yield a richer harvest to the antiquary than Pompeii and Herculaneum. The city of Oujcin (or Oojain) was, about fifty years before the Christian era, the seat of empire, of art, and of learning; but in the time of the rajah Vicramaditya, it was overwhelmed, together, as tradition reports, with more than eighty other large towns in the provinces of Malwa and Baurgur, "by a shower of earth." The city which now bears the name is situated a mile to the southward of the ancient town. On digging on the spot where the latter is supposed to have stood, to the depth of fifteen or eighteen feet, there are frequently discovered, says Mr. Hunter, entire brick walls, pillars of stone, and pieces of wood of an extraordinary hardness, besides utensils of various kinds, and ancient coins. Many coins are also found in the channels cut by the periodical rains, or in the beds of torrents into which they have been washed. "During our stay at Oujcin, a large quantity of wheat was found by a man digging for bricks. It was, as might have been expected, almost entirely consumed, and in a state resembling charcoal. In a ravine cut by the rains, from which several stone pillars had been dug, I saw a space from twelve to fifteen feet long and seven or eight

high, composed of earthen vessels, broken and closely compacted together. It was conjectured, with great appearance of probability, to have been a potter's kiln. Between this place and the new town is a hollow, in which tradition says, the river Sipparah formerly ran. It changed its course at the time the city was buried, and now runs to the westward." The soil which covers Oujein is described as "being of an ash-grey colour, with minute specks of black sand."

That the "shower of earth," which is reported to have "fallen from heaven," was produced by a volcanic eruption, we cannot doubt, although no information has been obtained respecting the site of the vent; and the nearest volcano of which we read, is that which was in eruption during the Cutch earthquake in 1819, at the distance of about thirty miles from Bhooj, the capital of Cutch, and at least three hundred geographical miles from Oujein.

Capt. F. Dangerfield, who accompanied Sir John Malcolm in his late expedition into central India, states that the river Nurbuddah, in Malwa, had its channel excavated through *columnar basalt*, on which rest beds of marl impregnated with salt. The upper of these beds is of a light colour, and from thirty to forty feet thick, and rests horizontally on the lower bed, which is of a reddish colour. Both appear from the description to be tufts composed of the materials of volcanic ejections, and forming a covering from sixty to seventy feet deep overlying the basalt, which seems to resemble some of the currents of prismatic lava in Auvergne and the Vivaris. Near the middle of this tufaceous mass, and therefore at the depth of thirty feet or more from the surface, just where the two beds of tuff meet, Captain Dangerfield was shown, near the city of Mhysir, buried

bricks and large earthen vessels, said to have belonged to the ancient city of Mhysir, destroyed by the catastrophe of Oujein.

LESSON 7.—*Cities and Towns imbedded in sand.*

Innumerable towns and cities have been buried to the westward of the Nile, between the temple of Jupiter Ammon and Nubia ; and it is scarcely possible to conceive a mode whereby interment could take place under circumstances more favourable to the conservation of monuments for indefinite periods. The sand which surrounded and filled the great temple of Ipsambul, first discovered by Burkhardt, and afterwards partially uncovered by Belzoni and Beechey, was so fine as to resemble a fluid when put in motion. Neither the features of the colossal figures, nor the colour of the stucco with which some were covered, nor the paintings on the walls, had received any injury from being enveloped for ages in this dry impalpable dust.

At some future period perhaps, when the pyramids shall have perished, the action of the sea, or an earthquake, may lay open to the day some of these buried temples. Or we may suppose the desert to remain undisturbed, and changes in the surrounding sea and land to modify the climate and the direction of the prevailing winds, so that these may then waft away the Lybian sands as gradually as they once brought them to those regions. Thus many a town and temple of higher antiquity than Thebes or Memphis might re-appear in their original integrity, and a part of the gloom which overhangs the history of earlier nations might be dispelled.

Those caravans are said to have been overwhelmed by the Lybian sands ; and Burkhardt informs us that,

“after passing the Akaba, near the head of the Red sea, the bones of dead camels are the only guides of the pilgrim through the wastes of sand.” “We did not see,” says Captain Lyon, speaking of a plain near the Soudah mountains in northern Africa, “the least appearance of vegetation; but observed many skeletons of animals which had died of fatigue in the desert, and occasionally the grave of some human being. All these bodies were so dried by the heat of the sun, that putrefaction appears not to have taken place after death. In recently expired animals I could not perceive the slightest offensive smell; and in those long dead the skin with the hair on it remained unbroken and perfect, although so brittle as to break with a slight blow. The sand-winds never cause these carcasses to change their places, for in a short time a slight mound is formed round them, and they become stationary.”

The burying of several towns and villages in England and France by blown sand is on record: thus, for example, in Suffolk, in the year 1688, part of Downham was overwhelmed by sands which had broken loose about one hundred years before, from a warren five miles to the south-west. This sand had in the course of a century travelled five miles, and covered more than a thousand acres of land.

The ruins of buildings have been found entire in the drift-sand of Cornwall, as we before mentioned, as also land-shells. One of the latter is said to belong to a species which is unknown at present in this country. Near St. Pol de Leon, in Brittany, a whole village was completely buried beneath drift-sand, so that nothing was seen but the spire of the church.

LESSON 8.—*Devastations of Locusts.*

There are extraordinary instances of the devastations of locusts in various countries. Among other parts of Africa, Cyrenaica has been at different periods infested by myriads of these creatures, which have consumed nearly every green thing. The effect of the havock committed by them may be estimated by the famine they occasioned. St. Augustin mentions a plague of this kind in Africa, which destroyed no fewer than eight hundred thousand men in the kingdom of Masanissa alone, and many more in the territories bordering upon the sea. It is also related, that in the year 591 an infinite army of locusts migrated from Africa into Italy, and, after grievously ravaging the country, were cast into the sea, when there arose from their stench a pestilence which carried off nearly a million of men and beasts.

In the Venetian territory also, in 1478, more than thirty thousand persons are said to have perished in a famine occasioned by this scourge; and other instances are recorded of their devastations in France, Spain, Italy, Germany, &c. In different parts of Russia also, Hungary and Poland, in Arabia and India, and other countries, their visitations have been periodically experienced. Although they have a preference for certain plants, yet when these are consumed, they will attack almost all the remainder. In the accounts of the invasions of locusts, the statements which appear most marvellous relate to the prodigious mass of matter which encumbers the sea wherever they are blown into it, and the pestilence arising from its putrefaction. Their dead bodies are said to have been in some places heaped one upon another to the depth of four feet, in Russia, Poland, and Lithuania; and when in southern Africa they were driven into the sea by a

north-west wind, they formed, says Barrow, for fifty miles along the shore, a bank three or four feet high. But when we consider that forests are stripped of their foliage, and the earth of its green garment, for thousands of square miles, it may well be supposed that the volume of animal matter produced may equal that of great herds of quadrupeds, and flights of large birds suddenly precipitated into the sea.

The occurrence of such events at certain intervals in hot countries, like the severe winters and damp summers returning after a series of years in this temperate zone, affect the proportional numbers of almost all classes of animals and plants, and are probably fatal to the existence of many which would otherwise thrive there; while on the contrary, they must be favourable to certain species which, if deprived of such aid, might not maintain their ground.

LESSON 9.—*Eruption of Mount Vesuvius.*

By an unusual good fortune we are in possession of a faithful narrative, furnished by an eye-witness, of the catastrophe which overwhelmed Pompeii. It is contained in two letters of Pliny the younger to Tacitus, which record the death of his uncle, who fell a victim to his inquiring spirit and his humanity.

“Your request that I would send you an account of my uncle’s death, in order to transmit a more exact relation of it to posterity, deserves my acknowledgments; for if this accident shall be celebrated by your pen, the glory of it, I am well assured, will be rendered for ever illustrious. And notwithstanding he perished by a misfortune which, as it involved at the same time a most beautiful country in ruins, and destroyed so many po-

pulous cities, seems to promise him an everlasting remembrance ; notwithstanding he has himself composed many and lasting works ; yet I am persuaded the mentioning of him in your immortal works will greatly contribute to eternise his name. Happy I esteem those to be, whom Providence has distinguished with the abilities either of doing such actions as are worthy of being related, or of relating them in a manner worthy of being read ; but doubly happy are they who are blessed with both these uncommon talents ; in the number of whom my uncle, as his own writings and your history will evidently prove, may justly be ranked. It is with extreme willingness, therefore, I execute your commands ; and should indeed have claimed the task if you had not enjoined it.

“ He was at that time with the fleet under his command at Misenum. On the 24th of August, about one in the afternoon, my mother desired him to observe a cloud which appeared of a very unusual size and shape. He had just returned from taking the benefit of the sun, and after bathing himself in cold water, and taking a slight repast, was retired to his study. He immediately arose and went out upon an eminence, from whence he might more distinctly view this very uncommon appearance. It was not at this distance discernible from what mountain this cloud issued, but it was found afterwards to ascend from Mount Vesuvius. I cannot give a more exact description of its figure, than by resembling it to that of a pine-tree, for it shot up a great height in the form of a trunk, which extended itself at the top into a sort of branches ; occasioned, I imagine, either by a sudden gust of air that impelled it, the force of which decreased as it advanced upwards, or the cloud itself being pressed back again by its own

weight expanded in this manner : it appeared sometimes bright and sometimes dark and spotted, as it was more or less impregnated with earth and cinders. This extraordinary phenomenon excited my uncle's philosophical curiosity to take a nearer view of it. He ordered a light vessel to be got ready, and gave me the liberty, if I thought proper, to attend him. I chose rather to continue my studies ; for, as it happened, he had given me an employment of that kind. As he was coming out of the house, he received a note from Rectina, the wife of Bassus, who was in the utmost alarm at the imminent danger which threatened her ; for her villa being situated at the foot of Mount Vesuvius, there was no way to escape but by sea ; she earnestly entreated him, therefore, to come to her assistance. He accordingly changed his first design ; and what he began with a philosophical, he pursued with an heroic, turn of mind. He ordered the galleys to put to sea, and went himself on board, with an intention of assisting not only Rectina, but several others, for the villas stand extremely thick upon that beautiful coast. When hastening to the place from whence others fled with the utmost terror, he steered his direct course to the point of danger, and with so much calmness and presence of mind as to be able to make and dictate his observations upon the motion and figure of that dreadful scenc. He was now so nigh the mountain that the cinders, which grew thicker and hotter the nearer he approached, fell into the ships, together with pumice-stones and black pieces of burning rock. They were likewise in danger, not only of being aground by the sudden retreat of the sea, but also from the vast fragments which rolled down from the mountain, and obstructed all the shore. Here he stopped to consider whether he should

return back again; to which the pilot advising him; 'Fortune,' said he, 'befriends the brave; carry me to Pomponianus.' Pomponianus was then at Stabræ, separated by a gulf, which the sea, after several insensible windings, forms upon the shore. He had already sent his baggage on board; for though he was not at that time in actual danger, yet being within the view of it, and indeed extremely near if it should in the least increase, he was determined to put to sea as soon as the wind should change. It was favourable however for carrying my uncle to Pomponianus, whom he found in the greatest consternation: he embraced him with tenderness, encouraging and exhorting him to keep up his spirits; and the more to dissipate his fears, he ordered, with an air of unconcern, the baths to be got ready; when, after having bathed, he sat down to supper with great cheerfulness, or at least (what is equally heroic) with all the appearance of it. In the meanwhile the eruption from Mount Vesuvius flamed out in several places with much violence, which the darkness of the night contributed to render still more visible and dreadful. But my uncle, in order to soothe the apprehensions of his friend, assured him it was only the burning of the villages, which the country people had abandoned to the flames: after this he retired to rest, and it is most certain he was so little discomposed as to fall into a deep sleep; for being pretty fat, and breathing hard, those who attended without actually heard him snore. The court which led to his apartment being now almost filled with stones and ashes, if he had continued there any time longer, it would have been impossible for him to make his way out; it was thought proper therefore to awaken him. He got up, and went to Pomponianus and the rest of his company, who were not uncon-

cerned enough to think of going to bed. They consulted together whether it would be more prudent to trust to the houses, which now shook from side to side with frequent and violent concussions ; or fly to the open fields, where the calcined stones and cinders, though light indeed, yet fell in large showers, and threatened destruction. In this distress they resolved for the fields, as the less dangerous situation of the two ; a resolution which, while the rest of the company were hurried into by their fears, my uncle embraced upon cool and deliberate consideration. They went then, having pillows tied upon their heads with napkins : and this was their whole defence against the storm of stones that fell around them. It was now day everywhere else, but there a deeper darkness prevailed than in the most obscure night ; which however was in some degree dissipated by torches and other lights of various kinds. They thought proper to go down farther upon the shore, to observe if they might safely put out to sea ; but they found the waves still run extremely high and boisterous. There my uncle, having drunk a draught or two of cold water, threw himself down upon a cloth which was spread for him, when immediately the flames, and a strong smell of sulphur, which was the forerunner of them, dispersed the rest of the company, and obliged him to rise. He raised himself up with the assistance of two of his servants, and instantly fell down dead ; suffocated, as I conjecture, by some gross and noxious vapour, having always had weak lungs, and being frequently subject to a difficulty of breathing. As soon as it was light again, which was not till the third day after this melancholy accident, his body was found entire, and without any marks of violence upon it, exactly in the same posture in which he fell, and looking more like a man asleep than dead.

“During all this time my mother and I were at Misenum. But as this has no connexion with your history, so your inquiry went no farther than concerning my uncle’s death ; with that, therefore, I will put an end to my letter : suffer me only to add, that I have faithfully related to you what I was either an eye-witness of myself, or received immediately after the accident happened, and before there was time to vary the truth. You will choose out of this narrative such circumstances as shall be most suitable to your purpose ; for there is a great difference between what is proper for a letter and a history ; between writing to a friend and writing to the public. Farewell !”

LESSON 10.—*Eruption of Mount Vesuvius, (concluded.)*

“The letter which, in compliance with your request, I wrote to you concerning the death of my uncle, has raised, it seems, your curiosity to know what terrors and dangers attended me while I continued at Misenum ; for there, I think, the account in my former broke off.

‘Though my shocked soul recoils, my tongue shall tell.’

“My uncle having left us, I pursued the studies which prevented my going with him, till it was time to bathe : after which I went to supper, and from thence to bed, where my sleep was greatly broken and disturbed. There had been, for many days before, some shocks of an earthquake, which the less surprised us as they are extremely frequent in Campania ; but they were so particularly violent that night, that they not only shook everything about us, but seemed indeed to threaten total destruction. My mother flew to my chamber, where she found me rising in order to awaken her. We went out into a small court belonging to the house, which separated the

sea from the buildings. As I was at that time but eighteen years of age, I know not whether I should call my behaviour, in this dangerous juncture, courage or rashness ; but I took up Livy, and amused myself with turning over that author, and even making extracts from him, as if all about me had been in full security. While we were in this posture, a friend of my uncle's, who was just come from Spain to pay him a visit, joined us ; and observing me sitting by my mother with a book in my hand, greatly condemned her calmness, at the same time that he reproved me for my careless security. Nevertheless, I still went on with my author. Though it was now morning, the light was exceedingly faint and languid : the buildings all around us tottered ; and though we stood upon open ground, yet as the place was narrow and confined, there was no remaining there without certain and great danger : we therefore resolved to quit the town. The people followed us in the utmost consternation, and, as to a mind distracted with terror every suggestion seems more prudent than its own, pressed in great crowds about us in our way out. Being got at a convenient distance from the houses, we stood still in the midst of a most dangerous and dreadful scene. The chariots, which we had ordered to be drawn out, were so agitated backwards and forwards, though upon the most level ground, that we could not keep them steady, even by supporting them with large stones. The sea seemed to roll back upon itself, and to be driven from its banks by the convulsive motion of the earth ; it is certain at least the shore was considerably enlarged, and several sea animals were left upon it. On the other side a black and dreadful cloud, bursting with an igneous serpentine vapour, darted out a long train of fire, resembling flashes

of lightning, but much larger. Upon this our Spanish friend, whom I mentioned above, addressing himself to my mother and me with great warmth and earnestness, said, 'If your brother and your uncle are safe, he certainly wishes you may be so too; but if he perished, it was his desire no doubt that you might both survive him: why, therefore, do you delay your escape a moment?' We could never think of our own safety, we said, while we were uncertain of his. Hereupon our friend left us, and withdrew from the danger with the utmost precipitation. Soon afterwards the cloud seemed to descend, and cover the whole ocean; as indeed it entirely hid the island of Capreae and the promontory of Misenum. My mother strongly conjured me to make my escape at any rate, which, as I was young, I might easily do: as for herself, she said, her age and corpulency rendered all attempts of that sort impossible. However she would willingly meet death, if she could have the satisfaction of seeing that she was not the occasion of mine. But I absolutely refused to leave her; and taking her by the hand I led her on: she complied with great reluctance, and not without many reproaches to herself for retarding my flight. The ashes now began to fall upon us, though in no great quantity. I turned my head, and observed behind us a thick smoke, which came rolling after us like a torrent. I proposed, while we had yet any light, to turn out of the high road, lest she should be pressed to death in the dark by the crowd that followed us. We had scarce stepped out of the path, when darkness overspread us, not like that of a cloudy night, or when there is no moon, but of a room when it is shut up, and all the lights extinct. Nothing then was to be heard but the shrieks of women, the screams

of children, and the cries of men ; some calling for their children, others for their parents, others for their husbands, and only distinguishing each other by their voices ; one lamenting his own fate, another that of his family ; some wishing to die from the very fear of dying ; some lifting their hands to the gods ; but the greater part imagining that the last and eternal night was come, which was to destroy the gods and the world together. Among these were some who augmented the real terrors by imaginary ones, and made the frightened multitude falsely believe that Misenum was actually in flames. At length a glimmering light appeared, which we imagined to be rather the forerunner of an approaching burst of flames, as in truth it was, than the return of day. However, the fire fell at a distance from us ; then again we were immersed in thick darkness, and a heavy shower of ashes rained upon us, which we were obliged every now and then to shake off, otherwise we should have been crushed and buried in the heap. I might boast that, during all this scene of horror, not a sigh or expression of fear escaped from me, had not my support been founded in that miserable though strong consolation, that all mankind were involved in the same calamity, and that I imagined I was perishing with the world itself ! At last this dreadful darkness was dissipated by degrees, like a cloud of smoke ; the real day returned, and even the sun appeared, though very faintly, and as when an eclipse is coming on. Every object that presented itself to our eyes (which were extremely weakened) seemed changed, being covered over with white ashes, as with a deep snow. We returned to Misenum, where we refreshed ourselves as well as we could, and passed an anxious night between hope and fear ; though indeed with a much larger share

of the latter ; for the earthquake still continued, while several enthusiastic people ran up and down, heightening their own and their friends' calamities by terrible predictions. However, my mother and I, notwithstanding the danger we had passed, and that which still threatened us, had no thoughts of leaving the place till we should receive some account from my uncle.

“And now you will read this narrative without any view of inserting it in your history, of which it is by no means worthy ; and indeed you must impute it to your own request if it shall deserve the trouble of a letter. Farewell.”

In all times and countries, indeed, there is a striking uniformity in the volcanic phenomena ; but it is most singular that Pliny, although giving a circumstantial detail of so many physical facts, and enlarging upon the manner of his uncle's death, and the ashes which fell when he was at Stabizæ, makes no allusion whatever to the sudden overwhelming of two large and populous cities, Herculaneum and Pompeii.

All naturalists who have searched into the memorials of the past for records of physical events, must have been surprised at the indifference with which the most memorable occurrences are often passed by in the works of writers of enlightened periods ; as also of the extraordinary exaggeration which usually displays itself in the traditions of similar events in ignorant and superstitious ages. But of all omissions, the most inexplicable perhaps is that now under consideration ; and we have no hesitation in saying, that had the buried cities never been discovered, the accounts transmitted to us of their tragical end would have been discredited by the majority, so vague and general are the other narratives, or so long subse-

quent to the event. Tacitus, the friend and contemporary of Pliny, when adverting in general terms to the convulsion, says merely that "cities were consumed or buried." Suetonius, although he alludes to the eruption incidentally, is silent as to the cities. They are mentioned by Martial in an epigram, as immersed in cinders; but the first historian who alludes to them by name is Dion Cassius, who flourished about a century and a half after Pliny. He appears to have derived his information from the traditions of the inhabitants, and to have recorded without discrimination all the facts and fables which he could collect. He tells us that, "during the eruption, a multitude of men of superhuman stature resembling giants appeared sometimes on the mountain and sometimes in the environs, that stones and smoke were thrown out, the sun was hidden, and then the giants seemed to rise again, while the sounds of trumpets were heard, &c. &c.; and finally two entire cities, Herculaneum and Pompeii, were buried under showers of ashes, while all the people were sitting in the theatre." That many of these circumstances were invented would have been obvious, even without the aid of Pliny's letters; and the examination of Herculaneum and Pompeii enables us to prove that none of the people were destroyed in the theatres, and indeed that there were very few of the inhabitants who did not escape from both cities. Yet some lives were lost, and there was ample foundation for the tale in its most essential particulars.

LESSON 11.—*Description of the Ruins of Herculaneum and Pompeii.*

Both at Herculaneum and Pompeii, temples have been found with inscriptions commemorating their having

been rebuilt after they were thrown down by an earthquake. This earthquake happened in the reign of Nero, sixteen years before the inhumation of the cities. In Pompeii, one fourth of which is now laid open to the day, both the public and private buildings bear testimony to the catastrophe. The walls are rent, and in many places traversed by fissures still open. Columns are lying on the ground only half hewn from huge blocks of travertin, and the temple for which they were designed is seen half repaired. In some few places the pavement had sunk in, but in general it was undisturbed, consisting of great flags of lava, in which two immense ruts have been worn by the constant passage of carriages through the narrow street. When the hardness of the stone is considered, the continuity of these ruts from one end of the town to the other is not a little remarkable, for there is nothing of the kind in the oldest pavements of modern cities.

A very small number of skeletons have been discovered in either city: and it is clear that the great mass of inhabitants not only found time to escape, but also to carry with them the principal part of their valuable effects. In the barracks at Pompeii were the skeletons of two soldiers chained to the stocks; and in the vaults of a country house in the suburbs were the skeletons of seventeen persons, who appear to have fled there to escape from the shower of ashes. They were found inclosed in an indurated tuff; and in this matrix was preserved a perfect cast of a woman, perhaps the mistress of the house, with an infant in her arms. Although her form was imprinted on the rock, nothing but the bones remained. To these a chain of gold was suspended, and rings with jewels were on the fingers of the skeleton.

Against the sides of the same vault was ranged a long line of earthen amphoræ.

The writing scribbled by the soldiers on the walls of their barracks, and the names of the owners of each house written over the doors, are still perfectly legible. The colours of fresco painting on the stuccoed walls in the interior of buildings are almost as vivid as if they were just finished. If these artificial colours therefore have stood, it is not wonderful that those of shells should have remained unfaded. There are public fountains decorated with shells laid out in patterns in the same fashion as those now seen in the town of Naples ; and in the room of a painter, who was perhaps a naturalist, a large collection of shells was found, comprising a great variety of Mediterranean species, in as good a state of preservation as if they had remained for the same number of years in a museum. A comparison of these remains with those found so generally in a fossil state, would not assist us in obtaining the least insight into the time required to produce a certain degree of decomposition or mineralization ; for although, under favourable circumstances, much greater alteration might doubtless have been brought about in a shorter period, yet the example before us shows that an inhumation of seventeen centuries may sometimes effect nothing towards the reduction of shells and several other bodies to the state in which fossils are usually found.

The wooden beams in the houses at Herculaneum are black on the exterior, but when cleft open they appear to be almost in the state of ordinary wood, and the progress made by the whole mass towards the state of lignite is scarcely appreciable. Some animal and vegetable substances of more perishable kinds have of course suffered

much change and decay, yet the state of conservation of these is truly remarkable. Fishing nets are very abundant in both cities, often quite entire ; and their number at Pompeii is the more interesting from the sea being now, as we stated, a mile distant. Linen has been found at Herculaneum, with the texture well defined ; and in a fruiterer's shop in that city were discovered vessels full of almonds, chestnuts, walnuts, and fruit of the "carubiere," all distinctly recognizable from their shape. A loaf, also still retaining its form, was found in a baker's shop, with his name stamped upon it thus, "Eleris Q. Crani Riser." On the counter of an apothecary was a box of pills converted into a fine earthy substance ; and by the side of it a small cylindrical roll, evidently prepared to be cut into pills. By the side of these was a jar containing medicinal herbs. In 1827 moist olives were found in a square glass case, and "caviare" or roe of a fish, in a state of wonderful preservation. An examination of these curious condiments has been published by Convelli of Naples, and they are preserved hermetically sealed in the museum there.

There is a marked difference in the condition and appearance of the animal and vegetable substances found in Pompeii and Herculaneum ; those of Pompeii being penetrated by a grey pulverulent tuff, those in Herculaneum seeming to have been first enveloped by a paste which consolidated round them, and then allowed them to become slowly carbonized. Some of the rolls of papyrus at Pompeii still retain their form ; but the writing, and indeed almost all the vegetable matter, appear to have vanished, and to have been replaced by volcanic tufa somewhat pulverulent. At Herculaneum the earthy matter has scarcely ever penetrated ; and the vegetable substance

of the papyrus has become a thin friable black matter, almost resembling in appearance the tinder which remains when stiff paper has been burnt, in which the letters may still be sometimes traced. The small bundles, composed of five or six rolls tied up together, had sometimes lain horizontally, and were pressed in that direction, but sometimes they had been placed in a vertical position. Small tickets were attached to each bundle, on which the title of the work was inscribed. In one case only have the sheets been found with writing on both sides of the pages. So numerous are the obliterations and corrections, that many must have been original manuscripts. The variety of handwritings is quite extraordinary ; almost all are written in Greek, but there are a few in Latin. They were all found in the library of one private individual ; and the titles of four hundred of those least injured, which have been read, are found to be unimportant works, but all entirely new, chiefly relating to music, rhetoric, and cookery. There are two volumes of Epicurus "On Nature," and the others are mostly by writers of the same school, only one fragment having been discovered by an opponent of the Epicurean system, Crisippus. In the opinion of some antiquaries, not one hundredth part of the city has yet been explored ; and the quarters hitherto cleared out at great expence, are those where there was the least probability of discovering manuscripts.

As Italy could already boast splendid Roman amphitheatres and Greek temples, it was a matter of secondary interest to add to their number those in the dark and dripping galleries of Herculaneum ; and having so many of the masterpieces of ancient art, we could have dispensed with the inferior busts and statues which could alone have been expected to reward our rescarches in the

ruins of a provincial town. But from the moment that it was ascertained that rolls of papyrus preserved in this city could still be deciphered, every exertion ought to have been steadily and exclusively directed towards the discovery of other libraries. Private dwellings should have been searched, and no labour and expense should have been consumed in examining public edifices. A small portion of that zeal and enlightened spirit which prompted the late French and Tuscan expedition to Egypt, might long ere this, in a country nearer home, have snatched from oblivion some of the lost works of the Augustan age, or of the most eminent Greek historians and philosophers. A single roll of papyrus might have disclosed more matter of intense interest than all that was ever written in hieroglyphics.

LESSON 12.—*Boiling Fountains of Iceland.*

Though surrounded by a great multiplicity of boiling springs and steaming apertures, the magnitude and grandeur of which far exceeded anything we had ever seen before, we felt at no loss in determining on which of them to feast our wondering eyes, and bestow the primary moments of astonished contemplation. Near the northern extremity of the tract rose a large circular mound, formed by the depositions of the fountain justly distinguished by the appellation of the *Great Geyser*, from the middle of which a great degree of evaporation was visible. Ascending the rampart, we had the spacious basin at our feet more than half filled with the most beautiful hot crystalline water, which was but just moved by a gentle ebullition, occasioned by the escape of steam from a cylindrical pipe or funnel in the centre.

This pipe I ascertained by admeasurement to be seventy-eight feet of perpendicular depth : its diameter is in general from eight to ten feet ; but near the mouth it gradually widens, and opens almost imperceptibly into the basin, the inside of which exhibits a whitish surface, consisting of a silicious incrustation, which has been rendered almost perfectly smooth by the incessant action of the boiling water. The diameter of the basin is fifty-six feet in one direction and forty-six in another ; and when full it measures about four feet in depth from the surface of the water to the commencement of the pipe. The borders of the basin, which form the highest part of the mound, are very irregular, owing to the various accretions of the deposited substances ; and at two places are small channels, equally polished with the interior of the basin, through which the water makes its escape, when it has been filled to the margin. The declivity of the mound is rapid at first, especially on the northwest side, but instantly begins to slope more gradually ; and the depositions are spread all round to different distances, the least of which is near a hundred feet. The whole of this surface, the two small channels excepted, displays a beautiful silicious efflorescence, rising in small granular clusters, which bear the most striking resemblance to the heads of cauliflowers, and, while wet, are of so extremely delicate a contexture, that it is hardly possible to remove them in a perfect state. They are of a brownish colour, but in some places approach to a yellow. On leaving the mound, the hot water passes through a turfy kind of soil, and, by acting on the peat mosses and grass, converts them entirely into stone, and furnishes the curious traveller with some of the finest specimens of petrification.

Having stood some time in silent admiration of the magnificent spectacle which this matchless fountain, even in a state of inactivity, presents to the view, as there were no indications of an immediate eruption, we returned to the spot where we had left our horses ; and as it formed a small eminence at the base of the hill, and commanded a view of the whole tract, we fixed on it as the site of our tents. About thirty-eight minutes past five we were apprized, by low reports, and a slight concussion of the ground, that an eruption was about to take place ; but only a few small jets were thrown up, and the water in the basin did not rise above the surface of the outlets. Not being willing to miss the very first symptoms of the phenomenon, we kept walking about in the vicinity of the spring, now surveying some of the other cavities, and now collecting elegant specimens of petrified wood, leaves, &c., on the rising ground between the Geyser and the base of the hill. At fifteen minutes past eight, we counted five or six reports, that shook the mound on which we stood ; but no remarkable jet followed ; the water only boiled with great violence, and by its heavings caused a number of small waves to flow towards the margin of the basin, which at the same time received an addition to its contents. Twenty-five minutes past nine, as I returned from the neighbouring hill, I heard reports which were both louder and more numerous than any of the preceding, and exactly resembled the distant discharge of a park of artillery. Concluding from these circumstances that the long-expected wonders were about to commence, I ran to the mound, which shook violently under my feet ; and I had scarcely time to look into the basin when the fountain exploded, and instantly compelled me to retire to a respectful distance on the wind-

ward side. The water rushed up out of the pipe with amazing velocity, and was projected by irregular jets into the atmosphere, surrounded by immense volumes of steam, which in a great measure hid the column from view. The first four or five jets were inconsiderable, not exceeding fifteen or twenty feet in height: these were followed by one about fifty feet, which was succeeded by two or three considerably lower; after which came the last, exceeding all the rest in splendour, which rose at least to the height of seventy feet. The large stones which we had previously thrown into the pipe were ejaculated to a great height, especially one, which was thrown much higher than the water. On the propulsion of the jets, they lifted up the water in the basin nearest the orifice of the pipe to the height of a foot, or a foot and a half; and on the falling of the column, it not only caused the basin to overflow at the usual channels, but forced the water over the highest part of the brim, behind which I was standing. The great body of the column (at least ten feet in diameter) rose perpendicularly, but was divided into a number of the most superb curvated ramifications; and several smaller sproutings were severed from it, and projected in oblique directions, to the no small danger of the spectator, who ere he is aware is apt to get scalded by the falling jet.

On the cessation of the eruption the water instantly sunk into the pipe, but rose again immediately to about half a foot above the orifice, where it remained stationary. All being again in a state of tranquillity, and the clouds of steam having left the basin, I entered it, and proceeded within reach of the water, which I found to be 183° of Fahrenheit,—a temperature of more than twenty degrees less than at any period while the basin

was filling, and occasioned, I suppose, by the cooling of the water during its projection into the air.

The whole scene was indescribably astonishing; but what interested us most was the circumstance that the strongest jet came last, as if the Geyser had summoned all her powers in order to show us the greatness of her energy, and to make a grand finish before retiring into the subterraneous chambers in which she is concealed from mortal view. Our curiosity had been gratified, but it was far from being satisfied. We now wished to have it in our power to inspect the mechanism of this mighty engine, and obtain a view of the springs by which it is put in motion; but the wish was vain, for they lie in "a tract which no fowl knoweth, and which the vulture's eye hath not seen;"—which man, with all his boasted powers, cannot and dare not approach. While the jets were rushing up towards heaven with the velocity of an arrow, my mind was forcibly borne along with them to the contemplation of that great and omnipotent Being, in comparison with whom these, and all the wonders scattered over the whole immensity of existence, dwindle into absolute insignificance; whose almighty command spake the universe into being, and at whose sovereign fiat the whole fabric might be reduced in an instant to its original nothing.

LESSON 13.—*The Pyramids.*

We were roused, as soon as the sun dawned, by Antony, our faithful Greek servant and interpreter, with the intelligence that the Pyramids were in view. We hastened from the cabin; and never will the impression made by their appearance be obliterated. By reflecting the sun's rays, they appear as white as snow, and of such

surprising magnitude, that nothing we had previously conceived in our imagination had prepared us for the spectacle we beheld. The sight instantly convinced us that no power of description, no delineation can convey ideas adequate to the effect produced in viewing these stupendous monuments. The formality of their construction is lost in their prodigious magnitude; the mind, elevated by wonder, feels at once the force of an axiom which, however disputed, experience confirms, that in vastness, whatsoever be its nature, there dwells sublimity. Another proof of their indescribable power is, that no one ever approached them under other emotions than those of terror, which is another principal source of the sublime. In certain instances of irritable feeling, this impression of awe and fear has been so great as to cause pain rather than pleasure; hence perhaps have originated descriptions of the pyramids which represent them as deformed and gloomy masses, without taste or beauty. Persons who have derived no satisfaction from the contemplation of them, may not have been conscious that the uneasiness they experienced was a result of their own sensibility. Others have acknowledged ideas widely different, excited by every wonderful circumstance of character and of situation, ideas of duration almost endless, of power inconceivable, of majesty supreme, of solitude most awful, of grandeur, of desolation, and of repose.

Upon the 23d of August 1802, we set out for the pyramids, the inundation enabling us to approach within less than a mile of the larger pyramid in our *djerm*, (boat of the Nile). Messrs. Hammer and Hamilton accompanied us. We arrived at Djiza at daybreak, and called upon some English officers, who wished to join our party upon this occasion. From Djiza, our ap-

proach to the pyramids was through a swampy country, by means of a narrow canal, which however was deep enough ; and we arrived without any obstacle, at nine o'clock, at the bottom of a sandy slope, leading up to the principal pyramid. Some Bedouin Arabs, who had assembled to receive us upon our landing, were much amused by the eagerness excited in our whole party, to prove who should first set his foot upon the summit of this artificial mountain. With what amazement did we survey the vast surface that was presented to us when we arrived at this stupendous monument, which seemed to reach the clouds ! Here and there appeared some Arab guides upon the immense masses above us, like so many pigmies, waiting to show the way to the summit. Now and then we thought we heard voices, and listened ; but it was the wind, in powerful gusts, sweeping the immense ranges of stone. Already some of our party had begun the ascent, and were pausing at the tremendous depth which they saw below. One of our military companions, after having surmounted the most difficult part of the undertaking, became giddy in consequence of looking down from the elevation he had attained ; and being compelled to abandon the project, he hired an Arab to assist him in effecting his descent. The rest of us, more accustomed to the business of climbing heights, with many a halt for respiration and many an exclamation of wonder, pursued our way towards the summit.

The mode of ascent has been frequently described ; and yet, from the questions which are often proposed to travellers, it does not appear to be generally understood. The reader may imagine himself to be upon a staircase, every step of which, to a man of middle stature, is nearly breast high ; and the breadth of each

step is equal to its height: consequently the footing is secure; and although a retrospect, in going up, be sometimes fearful to persons unaccustomed to look down from any considerable elevation, yet there is little danger of falling. In some places indeed, where the stones are decayed, caution may be required; and an Arab guide is always necessary, to avoid a total interruption; but, upon the whole, the means of ascent are such that almost every one may accomplish it. Our progress was impeded by other causes. We carried with us a few instruments, such as our boat-compass, a thermometer, a telescope, &c.; these could not be trusted in the hands of the Arabs, and they were every instant liable to be broken. At length we reached the topmost tier, to the great delight and satisfaction of all the party. Here we found a platform, thirty-two feet square, consisting of nine large stones, each of which might weigh about a ton, although they are much inferior in size to some of the stones used in the construction of this pyramid. Travellers of all ages and of various nations have here inscribed their names. Some are written in Greek, many in French, a few in Arabic, one or two in English, and others in Latin. We were as desirous as our predecessors to leave a memorial of our arrival; it seemed to be a tribute of thankfulness due for the success of our undertaking; and presently every one of our party was seen busied in adding the inscription of his name.

Upon this area, which looks like a point when seen from Caïro, or from the Nile, it is extraordinary that none of those numerous hermits fixed their abode, who retired to the tops of columns, and to almost inaccessible solitudes upon the pinnacle of the highest rocks. It offers a much more convenient and secure retreat than was

selected by an ascetic, who pitched his residence upon the architrave of a temple in the vicinity of Athens. The heat, according to Fahrenheit's thermometer, at the time of our coming, did not exceed 84° ; and the same temperature continued during the time we remained, a strong wind blowing from the northwest. The view from this eminence amply fulfilled our expectations; nor do the accounts which have been given of it, as it appears at this season of the year, exaggerate the novelty and grandeur of the sight. All the region towards Cairo and the Delta resembled a sea covered with innumerable islands. Forests of palm-trees were seen standing in the water; the inundation spreading over the land where they stood, so as to give them an appearance of growing in the flood. To the north, as far as the eye could reach, nothing could be discerned but a watery surface thus diversified by plantations and by villages. To the south we saw the pyramids of Saccára; and upon the east of these, smaller monuments of the same kind nearer to the Nile. An appearance of ruins might indeed be traced the whole way from the pyramids of Djiza to those of Saccára, as if they had been once connected so as to constitute one vast cemetery. Beyond the pyramids of Saccára we could perceive the distant mountains of Said; and upon an eminence near the Libyan side of the Nile appeared a monastery of considerable size. Towards the west and southwest, the eye ranged over the great Libyan desert, extending to the utmost verge of the horizon, without a single object to interrupt the dreary horror of the landscape, except dark floating spots caused by the shadows of passing clouds upon the sand.

Upon the southeast side is the gigantic statue of the Sphinx, the most colossal piece of sculpture which re-

mains of all the works executed by the ancients. The French have uncovered all the pedestal of this statue, and all the cumbent or leonine parts of the figure; these were before entirely concealed by sand. Instead however of answering the expectations raised concerning the work upon which it was supposed to rest, the pedestal proves to be a wretched substructure of brickwork and small pieces of stone, put together like the most insignificant piece of modern masonry, and wholly out of character, both with respect to the prodigious labour bestowed upon the statue itself, and the gigantic appearance of the surrounding objects. Beyond the Sphinx, we distinctly discerned, amidst the sandy waste, the remains and vestiges of a magnificent building, perhaps the SERAPIUM.

Immediately beneath our view, upon the eastern and western side, we saw so many tombs that we were unable to count them; some being half buried in the sand, others rising considerably above it. All these are of an oblong form, with sides sloping like the roofs of European houses. A plan of their situation and appearance is given in Pocock's Travels. The second pyramid, standing to the southwest, has the remains of a covering near its vertex, as of a plating of stone which had once invested all its four sides. Some persons, deceived by the external hue of this covering, have believed it to be of marble; but its white appearance is owing to a partial decomposition affecting the surface only. Not a single fragment of marble can be found anywhere near this pyramid. It is surrounded by a paved court, having walls on the outside, and places, as for doors or portals, in the walls; also an advance work or portico. A third pyramid, of much smaller dimensions than the second, appears beyond the Sphinx to the southwest; and there

are three others, one of which is nearly buried in the sand, between the large pyramid and this statue, to the southeast.

LESSON 14.—*The Salt-Mine, near Cracow in Poland.*

At Wielitska, a small town about eight miles from Cracow, this wonderful mine is excavated in a ridge of hills, at the northern extremity of the chain which joins to the Carpathian mountains; and has been worked above six hundred years.

There are eight openings or descents into this mine, six in the fields and two in the town itself. The openings are lined throughout with timber: and at the top of each there is a large wheel, with a rope as thick as a cable, by which things are let down, and the salt is drawn up.

The descent is very slow and gradual, down a narrow dark well, to the depth of six hundred feet perpendicular. The place where the stranger is set down is perfectly dark; but the miners, striking fire and lighting a small lamp, conduct him through a number of passages, and by means of ladders they again descend to an immense depth: at the foot of the last ladder the stranger is received in a small dark cavern: and in the course of their descent it is usual for the guide to pretend the utmost dread and apprehension of the feeble light of his lamp going out, often declaring that such an accident might be attended with the most fatal consequences.

When arrived at this dreary chamber, the miner contrives to extinguish his lamp, as if by accident, and catching the stranger by the hand, drags him through a narrow creek into the body of the mine; when there bursts upon his view a little world, the beauty of which is scarcely to be imagined. He beholds a spacious plain,

containing a kind of subterranean city, with houses, carriages, roads, &c. all scooped out of one vast rock of salt, as bright and glittering as crystal ; while the blaze of the lights continually burning for the general use, reflected from the dazzling columns which support the lofty arched vaults of the mine, and which are beautifully tinged with all the colours of the rainbow, and sparkle with the lustre of precious stones, affords a more splendid and glittering prospect than anything above ground can possibly exhibit.

In various parts of this spacious plain stand the huts of the miners and their families, some single and others in clusters like villages. They have very little communication with the world above ground ; and many hundreds of persons are born and pass the whole of their lives here.

Through the midst of this plain lies a road, which is always filled with carriages laden with masses of salt from the furthest part of the mine. The drivers are generally singing, and the salt looks like a load of gems. A great number of horses are kept in the mine ; and when once let down, never see daylight again.

The instruments principally used by the miners are pickaxes, hammers, and chisels ; with which they dig out the salt in the form of huge cylinders, each of many hundredweight. This is found the most convenient method of getting it out of the mine ; and as soon as got above ground, the masses are broken into smaller pieces and sent to the mills, where they are reduced to powder. The finest sort of salt is sometimes cut into toys, and often passes for real crystal.

This mine appears to be inexhaustible. Its known breadth is one thousand one hundred and fifteen feet, its length is six thousand six hundred and ninety-one

feet; and its depth seven hundred and forty-three feet. This however is to be understood only of the part which has been actually worked ; as to the real depth or longitudinal extent of the bed of salt, it is not possible to conjecture.

LESSON 15.—*The Laplanders.*

Who can be without a lively sense of gratitude toward his Creator, and of pity to those of his fellow-creatures to whom Nature has more sparingly distributed her blessings, when he fixes his eyes on the Laplanders, and the inhabitants of the lands bordering on the arctic pole?

Their country is formed of a chain of mountains covered with snow and ice, which do not melt even in summer ; and where the chain is interrupted, bogs and marshes fill the space. Winter is felt during the greater part of the year : a deep snow overwhelms the valleys and covers the little hills, and for a long time the sun never rises above their horizon.

The inhabitants seek shelter from the cold in tents, which can be removed from one place to another. They fix their fireplace in the middle of the tent, and surround it with stones. The smoke goes out at a hole in the top, which also serves them for a window. There they fasten iron chains, to which they hang the caldrons in which they dress their food, and melt the ice which serves them for drink. The inside of the tent is furnished with furs, which preserve them from the cold ; and they lie on skins of animals spread upon the ground.

It is in such habitations that the Laplanders pass their winter, surrounded by the howling wolves, which are roaming everywhere in search of prey. How could we bear the climate and way of life of these people? How

much we should think ourselves to be pitied, if we had nothing before our eyes but an immense extent of ice, and whole deserts covered with snow ; the absence of the sun making the cold still more insupportable !—and if instead of a convenient dwelling, we had only moveable tents made of skins ; and no other resource for our subsistence but in painful and dangerous hunting.

Are not these reflections proper to make us observe the many advantages of our climate, to which we attend so little ? Ought they not to animate us to bless the divine Providence for the many thousand advantages we enjoy ? Yes, let us ever bless that wise Providence ; and when we feel the severity of the season, let us return thanks that the cold is so moderate where we dwell, and that we have such numerous ways of guarding against it.

But is the inhabitant of northern countries so unhappy as we imagine ? It is true that he wanders painfully through rough valleys and unbeaten roads, and that he is exposed to the inclemency of the seasons : but his hardy body is able to bear fatigue. If the Laplander be poor, and deprived of many of the conveniences of life that we enjoy ; is he not rich in knowing no other wants than those which he can easily satisfy ? He is deprived, for several months, of the light of the sun ; but in return, the moon and the aurora borealis come to illuminate his horizon. Even the snow and ice, in which he is buried, do not make him unhappy. Education and custom arm him against the severity of his climate. The hardy life he leads enables him to brave the cold ; and the particular wants which are indispensable to him, Nature has made it easy for him to supply. She has pointed out to him animals, the fur of which defends

him from the keenness of the air. She has given him the reindeer, which furnishes him with his tent, his dress, his bed, and his food : with this animal he undertakes long journeys ; it supplies almost all his wants, and the maintenance of it is no expense or trouble to him.

If it be true then, that the idea we form of happiness depends more on opinion than on reason ; if it be true also, that real happiness is not fixed to particular people, or particular climates ; and that, with the necessaries of life and peace of mind, a man may be happy in any corner of the earth : have we not a right to ask, what the Laplander wants to make him happy ?

LESSON 16.—*The Mirage.*

The phenomenon of the mirage excites in the pilgrim of the deserts those alternations of hope and disappointment which add to the miseries of his actual situation. He sees before him lakes of water, which are gone the instant he arrives at the spot where he fancied they offered their refreshment to his feverish lips. The Arabs are familiar with this remarkable appearance, and they are seldom deceived by it ; although, if the mirage and a real stream could be seen at the same time, it would be difficult to distinguish the reality from the delusion. The guides of the European traveller often amuse themselves by calling to him that water is in sight, when they are upon the most thirsty spots of a sandy and gravelly plain. Burckhardt has described the mirage with his usual felicity : “ During the whole day’s march we were surrounded on all sides by lakes of mirage, called by the Arabs serab. Its colour was of the purest azure, and so clear that the shadow of the mountains which bordered the horizon were reflected in it with the greatest pre-

cision, and the delusion of its being a sheet of water was thus rendered still more perfect. I had often seen the mirage in Syria and Egypt, but always found it of a whitish colour, rather resembling a morning mist, seldom lying steady on the plain, but in continual vibration ; but here it was very different, and had the most perfect resemblance to water. The great dryness of the air and earth in this desert may be the cause of the difference. The appearance of water approached also much nearer than in Syria and Egypt, being often not more than two hundred paces from us, whereas I had never seen it before at a distance less than half a mile. There were at one time about a dozen of these false lakes around us, each separated from the other, and for the most part in the low grounds." The mirage is caused by the extraordinary refraction which the rays of the sun undergo in passing through masses of air in contact with a surface greatly heated. These atmospheric delusions are not confined to the appearance of water in the desert. The traveller, fainting beneath a burning sun, sees a tree in the distance sufficiently large for him to find a shade beneath its boughs. He quickens his pace, hoping to enjoy half an hour of refreshing coolness before his camels shall have passed. The tree is really a miserable shrub, that does not afford shade enough to shelter one of his hands. This magnifying of objects is produced by the slight vapour which rises when the heat is greatest. When the sun gleams on the sand-hills, they appear at an immense distance ; the traveller hopes that his camels may be spared the pain of crossing these slippery ascents, when in a few minutes he is close upon them, and sees a man or a camel within a stone's throw toiling to the top. As the sun ascends towards the zenith, and the earth and

the currents of air assume different temperatures, the phenomena of the mirage present numerous modifications. Humboldt states that, in plains of South America where the air is very dry, he often saw the images of troops of wild oxen suspended in the air long before the eye could see the oxen themselves; and the small currents of air were of such a variable temperature, that the legs of some appeared to rest upon the ground, while others were elevated above it. In Arabia, Neibuhr observed the image of an animal reversed before he saw the direct image. Sometimes towers and large masses of apparent buildings are seen upon the horizon, which disappear at intervals, without the traveller being able to decide upon the true forms of the objects, which are probably little sand-hills, beyond the ordinary range of vision. All these phenomena are modifications of the mirage, though the name is generally applied to the unreal lakes of the desert. The Persian and Arabian poets make frequent allusion to these magical effects of terrestrial refraction.

LESSON 17.—*The Salt-Mines of the Panjáb.*

In the high lands of *Kabúl*, between the city of that name and *Pesháwar*, a range of hills springing from the roots of the white mountain (*Suféd Koh*) crosses the Indus at *Hara-bágh*, and terminates on the right bank of the *Jelum*, or Hydaspes of the ancients. This range formerly figured in our maps under the name of *Jood*, after it had passed the river; but it has been more appropriately denominated the salt range, from the extensive deposits of rock salt which it contains. An account of that part of it near *Hara-bágh*, where the Indus in its course southward cuts this range and lays open its mi-

neral treasures, will be found in Mr. Elphinstone's work. In the neighbourhood of *Pind-Dádan-Khán*, a town about a hundred miles northwest of Lahore, the salt mines which supply the northern provinces of India with that necessary of life are excavated in the same range. The following particulars pretend not to rank as a scientific account of these mines, the only object being to convey that information which a journey to so unfrequented a part of the Panjáb has enabled an individual to collect.

The salt range forms the southern boundary of a plateau between the Indus and Hydaspes, which rises about 800 feet from the plains of the Panjáb. The hills rise to an actual height of about 1200 feet from the valley of the *Jelum*, which gives them an elevation of about 2200 feet from the sea. They exceed five miles in breadth. The formation is sandstone occurring in vertical strata, with pebbles or round stones imbedded in various parts of it. Vegetation is scanty; and the bold and bare precipices, some of which rise at once from the plain, present a frightful aspect of desolation. Hot springs are found in various places. Alum, galena, and sulphur also occur; but a red clay, which is chiefly found in the valleys, is a sure indication of a salt deposit, and it is to be found at intervals throughout this range. The supply of the mineral is now drawn from *Pind-Dádan-Khán*, whence it can be conveyed with facility both up and down a navigable river.

At the village of *Keoru*, five miles from *Pind-Dádan-Khán*, was examined one of the principal mines. It was situated in a valley near the outside of the range, which was cut by a rivulet of salt water. It opened into the hill through the red clayey formation above mentioned, at a distance of about 200 feet from the base. The pas-

sage was by a narrow gallery, sufficient to admit of one person passing another, for about 350 yards, of which fifty may be taken as actual descent. Here is a cavern of irregular dimensions, and about a hundred feet high, excavated entirely in salt. The mineral is deposited in strata of the utmost regularity, occurring like the external rock in vertical layers. Some of them however subtend an angle of from 20 to 30 degrees, and have the same appearance as bricks that have been placed upon one another. None of the layers exceed a foot and a half in thickness, and each is distinctly separated from its neighbour by a deposit of argillaceous earth, about an eighth of an inch thick, which lies like mortar between the strata. Some of the salt occurs in hexagonal crystals, but oftener in masses; the whole of it is tinged with red, varying from the slightest shade to the deepest hue; when pounded, the salt is white. The temperature of the cavern exceeded that of the open air by 20 degrees, when the thermometer stood at 64° (in February). The natives state that these mines are much colder in the hot season; but this only shows that they undergo little or no alteration, while the heat outside increases as the season advances.

There were upwards of a hundred persons, men, women, and children, at work in the mine, and their little dim burning lamps on the sides of the cavern and its recesses shone with reflected lustre from the ruby crystals of the rock. The cavity has been excavated from the roof downward. The salt is hard and brittle, so that it splinters when struck with the sledgehammer and pickaxe. The rock is never blasted with gunpowder, from fear of the roof falling in; and accidents of this kind sometimes happen in the present simple mode of excavation. The

mines are not worked for two months during the rains for the same reason. The miners live in villages among the hills. They have a most unhealthy complexion, but do not appear to be subject to any particular disease. They receive a rupee for every twenty maunds of salt brought to the surface ; a task which may be performed by a man, his wife, and child, in two days. In those mines where the mineral is near the surface, it is hewn into blocks of four maunds, two of which load a camel ; but it is usually broken in small pieces. This salt holds a high reputation with native practitioners throughout India, for its medicinal virtues. It is not pure, having a considerable mixture of some substance (probably magnesia) which renders it unfit for curing meat. The natives of the Panjáb ascribe the prevalence of *nazla* to its effects. That disease is said to consist of a running at the nostrils, which wastes the brain and stamina of the body ; with what truth is not known.

As the salt-range contains a supply which is inexhaustible, the mines yield any quantity that may be desired. Two thousand five hundred maunds of Lahore, one of which is equal to one hundred pounds English, are extracted daily, which gives about eight lacs of maunds for the year. A few years since this salt was sold at the mine for a half and even a quarter of a rupee per maund ; but its price has been now raised to two rupees per maund exclusive of duties. A lac and a half of rupees is expended in working the mineral. The profits amount to about 1100 per cent., though the salt is sold for one third the price of that of Bengal, which averages five rupees per maund of eighty pounds. The *Panjáb* salt is exported by the *Jelum* to *Multan* and *Bahawalpúr*, where it meets that of the *Sámar* lake. It

finds its way to the banks of the *Junna* and to *Kashmír*, but it is not exported westward of the Indus. Ranjít Singh prohibited the manufacture of salt in all parts of his dominions ; yet it is very questionable if he ever derived so large a revenue from it as he expected. The farmer of the monopoly, a cruel and tyrannical man, mercilessly oppressed the people to extract it. The natives do not know the period at which these mines were first worked, but it must have been at an early date, since the mineral is laid open by the Indus. They were used by the emperors of Hindustán, but the inquiring Baber does not mention them in his commentaries.

LESSON 18.—*Earthquakes at Sumbawa and Cutch.*

Island of Sumbawa, 1815.—In April 1815, one of the most frightful eruptions recorded in history occurred in the mountain Tomboro, in the island of Sumbawa. It began on the 5th of April, was most violent on the 11th and 12th, and did not entirely cease till July. The sound of the explosions was heard in Sumatra, at the distance of nine hundred and seventy geographical miles in a direct line ; and at Ternate, in an opposite direction, at the distance of seven hundred and twenty miles. Out of a population of twelve thousand, only twenty-six individuals survived on the island. Violent whirlwinds carried up men, horses, cattle, and whatever else came within their influence, into the air, tore up the largest trees by the roots, and covered the whole sea with floating timber. Great tracts of land were covered by lava, several streams of which, issuing from the crater of the Tomboro mountain, reached the sea. So heavy was the fall of ashes, that they broke into the resident's house at

Bima, forty miles east of the volcano, and rendered it, as well as many other dwellings in the town, uninhabitable. On the side of Java, the ashes were carried to the distance of three hundred miles, and two hundred and seventeen towards Celebes, in sufficient quantity to darken the air. The floating cinders to the westward of Sumatra formed on the 12th of April a mass two feet thick, and several miles in extent, through which ships with difficulty forced their way. The darkness occasioned in the daytime by the ashes in Java was so profound, that nothing equal to it was ever witnessed in the darkest night. Although this volcanic dust when it fell was an impalpable powder, it was of considerable weight when compressed, a pint of it weighing twelve ounces and three quarters. Along the sea-coast of Sumbawa and the adjacent isles, the sea rose suddenly to the height of from two to twelve feet, a great wave rushing up the estuaries, and then suddenly subsiding. Although the wind at Bima was still during the whole time, the sea rolled in upon the shore, and filled the lower parts of the houses with water a foot deep. Every prahu and boat was forced from the anchorage and driven on shore.

On the 19th of April, says one of Raffles's correspondents, "we grounded on the bank of Bima town. The anchorage at Bima must have altered considerably, as where we grounded, the Ternate cruiser lay at anchor in six fathoms a few months before." Unfortunately no facts are stated by which we may judge with certainty whether this shoal, implying a change of depth of more than thirty feet, was caused by an accumulation of ashes, or by an upheaving of the bottom of the sea. It is stated, however, that the surrounding country was covered with ashes. On the other hand, the town called Tomboro, on

the west side of the volcano, was overflowed by the sea, which encroached upon the shore at the foot of the volcano, so that the water remained permanently eighteen feet deep in places where there was land before. Here we may observe that the amount of subsidence of land was very apparent *in spite of the ashes*, which would naturally have caused the limits of the coast to be extended.

The area over which tremulous noises and other volcanic effects extended, was one thousand English miles in circumference, including the whole of the Molucca islands, Java, a considerable portion of the Celebes, Sumatra, and Borneo. In the island of Amboyna, in the same month and year, the ground opened, threw out water, and then closed again. We may conclude by reminding the reader that, but for the accidental presence of Sir Stamford Raffles, then governor of Java, we should scarcely have heard in Europe of this tremendous catastrophe. He required all the residents in the various districts under his authority to send in a statement of the circumstances which occurred within their own knowledge; but, valuable as were their communications, they are often calculated to excite rather than to satisfy the curiosity of the geologist. They mention that similar effects, though in a less degree, had about seven years before accompanied an eruption of Carang Assam, a volcano in the island of Bali, west of Sumbawa; but no particulars of this catastrophe are recorded.

Cutch, 1819.—A violent earthquake occurred at Cutch in India, on the 16th of June, 1819. The principal town, Bhooj, was converted into a heap of ruins, and its stone buildings thrown down. The shock extended to Ahmedabad, where it was very destructive; and at Poo-

nah, four hundred miles farther, it was feebly felt. At the former city, the great mosque, erected by Sultan Ahmed nearly four hundred and fifty years before, fell to the ground, attesting how long a period had elapsed since a shock of similar violence had visited that point. At Anjar, the fort, with its towers and guns, was hurled to the ground in one common mass of ruin. The shocks continued some days until the 20th, when, thirty miles from Bhooj, a volcano burst out in eruption, and the convulsions ceased. Although the ruin of towns was great, the face of nature in the inland country, says Captain Macmurdo, was not visibly altered. In the hills some large masses only of rock and soil were detached from the precipices; but the eastern and almost deserted channel of the Indus, which bounds the province of Cutch, was greatly changed. This estuary or inlet of the sea was, before the earthquake, fordable at Luckput, being only about a foot deep when the tide was at ebb, and at flood tide never more than six feet; but it was deepened at the fort of Luckput, after the shock, to more than *eighteen feet at low water*. On sounding other parts of the channel it was found, that where previously the depth of the water at flood never exceeded one or two feet, it had become from four to ten feet deep; and this increase of depth extended from Cutch to the Sindh shore, a distance of three or four miles. The channel of the Runn, which extends from Luckput round the north of the province of Cutch, was sunk so much, that instead of being dry as before during that period of the year, it was no longer fordable, except at one spot only. By these remarkable changes of level, a part of the inland navigation of that country, which had been closed for centuries, became again practicable.

The fort and village of Sindree, situated where the Runn joins the Indus, were overflowed ; and after the shock, the tops of the houses and wall alone were to be seen above the water, for the houses, although submerged, were not cast down. Had they been situated in the interior, where so many forts were levelled to the ground, their site would perhaps have been regarded as having remained comparatively unmoved. From this circumstance we may feel assured, that great permanent upheavings and depressions of soil may be the result of earthquakes, without the inhabitants being in the least degree conscious of any change of level.

Cones of sand six or eight feet in height were thrown out of the lands near the Runn. Somewhat further to the east of the line of this earthquake lies Oojain (called Ozene in the *PERYPLUS MARIS ERYTHR*). Ruins of an old town are there found, a mile north of the present, sunk in the earth to the depth of from fifteen to sixteen feet, which sinking is known to have been the consequence of a tremendous catastrophe in the time of the Raja Vicramaditya.

CHAPTER IV.

HISTORICAL PIECES.

LESSON I.—*Alexander's Invasion of India.*

The most practicable avenue to every country, it is obvious, must be formed by circumstances in its natural situation, such as the defiles which lead through mountains, the course of rivers, and the places where they may

be passed with the greatest ease and safety. In no place of the earth is this line of approach marked and defined more conspicuously than on the northern frontier of India; insomuch that the three great invaders of this country, Alexander, Tamerlane, and Nadir Shah, in three distant ages, and with views and talents extremely different, advanced by the same route, with very little deviation. Alexander had the merit of having first discovered the way. After passing the mountains he encamped at Alexandria Paropamisana, not far from the mountains denominated the Indian Caucasus by his historians, now known by the name of Hindu Koh; and having subdued or conciliated the nations seated on the northwest bank of the Indus, he crossed the river at Taxile, now Attock, where its stream is so tranquil that a bridge can be thrown over it with greater ease than at any other place.

After passing the Indus, Alexander marched forward in the road which leads directly to the Ganges, and the opulent provinces to the southeast, now comprehended under the general name of the Betah or Chelum. He was opposed by Porus, a powerful monarch of the country, at the head of a numerous army. The war with Porus, and the hostilities in which he was successively engaged with other Indian princes, led him to deviate from his original route, and to turn more towards the southwest. In carrying on these operations, Alexander marched through one of the richest and best peopled countries of India, now called the Panjáb, from the five great rivers by which it is watered: and as we know that this march was performed in the rainy season, when even Indian armies cannot keep the field, it gives a high idea both of Alexander's persevering spirit, and of the extraordinary

vigour and hardiness of constitution which soldiers in ancient times derived from the united effects of gymnastic exercise and military discipline. In every step of his progress objects no less striking than new presented themselves to Alexander. The magnitude of the Indus, even after he had seen the Nile, the Euphrates, and the Tigris, must have filled him with surprise. No country he had hitherto visited was so populous and well cultivated, or abounded in so many valuable productions of nature and of art, as that part of India through which he had led his army. But when he was informed in every place, and probably with exaggerated description, how much the Indus was inferior to the Ganges, and how far all that he had hitherto beheld was surpassed in the happy regions through which that greater river flows, it is not wonderful that his eagerness to view and to take possession of them should have prompted him to assemble his soldiers, and to propose that they should resume their march towards that quarter where wealth, dominion, and fame awaited them. But they had already done so much, and had suffered so greatly, especially from incessant rains and extensive inundations, that their patience as well as strength were exhausted, and with one voice they refused to advance farther. In this resolution they persisted with such sullen obstinacy, that Alexander, though possessed in the highest degree of every quality that gains an ascendant over the minds of military men, was obliged to yield, and issue orders for marching back to Persia.

The scene of this memorable transaction was on the banks of the Hyphasis, the modern Beyah, which was the utmost limit of Alexander's progress in India. From this it is manifest that he did not traverse the whole

extent of the Panjáb. Its southwest boundary is formed by a river anciently known by the name of Hysudrus, and now by that of the Sutlege, to which Alexander never approached nearer than the southern bank of the Hyphasis, where he erected twelve stupendous altars, which he intended as a monument of his exploits, and which (if we may believe the biographer of Apollonius Tyanæus) were still remaining with legible inscriptions when that fantastic sophist visited India, three hundred and seventy-three years after Alexander's expedition. The breadth of the Panjáb, from Ludiana on the Sutlege to Attock on the Indus, is computed to be two hundred and fifty-nine geographical miles in a straight line; and Alexander's march, computed in the same manner, did not extend above two hundred miles. But, both as he advanced and returned, his troops were so spread over the country, and often acted in so many separate divisions, and all his movements were so exactly measured and delineated by men of science whom he kept in pay for the purpose, that he acquired a very extensive and accurate knowledge of that part of India.

When upon his return he reached the banks of the Hydaspes, he found that the officers to whom he had given it in charge to build and collect as many vessels as possible, had executed his orders with such activity and success that they had assembled a numerous fleet. As, amidst the hurry of war and the rage of conquest, he never lost sight of his pacific and commercial schemes, the destination of his fleet was to sail down the Indus to the ocean, and from its mouth to proceed to the Persian gulf, that a communication by sea might be opened with India and the centre of his dominions.

The conduct of this expedition was committed to Ne-

archus, an officer equal to that important trust. But as Alexander was ambitious to acquire fame of every kind, and fond of engaging in new and splendid undertakings, he himself accompanied Nearchus in his navigation down the river. The armament was indeed as great and magnificent as deserved to be commanded by the conqueror of Asia. It was composed of an army of a hundred and twenty thousand men and two hundred elephants, and of a fleet of near two thousand vessels, various in burden and form ; on board of which one third of the troops embarked, while the remainder marching in two divisions, one on the right and the other on the left of the river, accompanied them in their progress. As they advanced, the nations on each side were either compelled or persuaded to submit. Retarded by the various operations in which this engaged him, as well as by the slow navigation of such a fleet as he conducted, Alexander was above nine months before he reached the ocean.

Alexander's progress in India in this line of direction was far more considerable than that which he made by the route we formerly traced ; and when we attend to the various movements of his troops, the number of cities which they took, and the different states which they subdued, he may be said not only to have viewed, but to have explored, the countries through which he passed. This part of India has been so little frequented by Europeans in later times, that neither the position of places nor their distances can be ascertained with the same accuracy as in the interior provinces, or even in the Pan-jáb. But from the researches of Major Rennell, carried on with no less discernment than industry, the distance of that place on the Hydaspes where Alexander fitted out his fleet from the ocean, cannot be less than a thou-

sand British miles. Of this extensive region a considerable portion, particularly the upper Delta, stretching from the capital of the ancient Malli, now Moultan, to Patala, the modern Tatta, is distinguished for its fertility and population.

Soon after he reached the ocean, Alexander, satisfied with having accomplished this arduous undertaking, led his army by land back to Persia. The command of the fleet, with a considerable body of troops on board of it, he left to Nearchus, who, after a coasting voyage of seven months, conducted it safely up the Persian gulf into the Euphrates.

LESSON 2.—*Zenobia, Queen of Palmyra.*

Modern Europe has produced several illustrious women, who have sustained with glory the weight of empire; nor is our own age destitute of such distinguished characters. But, if we except the doubtful achievements of Semiramis, Zenobia is perhaps the only female whose superior genius broke through the servile indolence imposed on her sex by the climate and manners of Asia. She claimed her descent from the Macedonian kings of Egypt, equalled in beauty her ancestor Cleopatra, and far surpassed that princess in chastity and valour. Zenobia was esteemed the most lovely as well as the most heroic of her sex. She was of a dark complexion: (for in speaking of a lady these trifles become important:) her teeth were of a pearly whiteness; and her large black eyes sparkled with uncommon fire, tempered by the most attractive sweetness. Her voice ~~was~~ strong and harmonious. Her manly understanding was strengthened and adorned by study. She was not ignorant of

the Latin tongue, but possessed in equal perfection the Greek, the Syriac, and the Egyptian languages. She had drawn up for her own use an epitome of oriental history, and familiarly compared the beauties of Homer and Plato, under the tuition of the sublime Longinus.

This accomplished woman gave her hand to Odenathus, who from a private station raised himself to the dominion of the East. She soon became the friend and companion of a hero. In the intervals of war Odenathus passionately delighted in the exercise of hunting: he pursued with ardour the wild beasts of the desert, lions, panthers, and bears: and the ardour of Zenobia in that dangerous amusement was not inferior to his own. She had inured her constitution to fatigue, disdained the use of a covered carriage, generally appeared on horseback in a military habit, and sometimes marched several miles on foot at the head of the troops. The success of Odenathus was in a great measure ascribed to her incomparable prudence and fortitude. Their splendid victories over the great king, whom they twice pursued as far as the gates of Ctesiphon, laid the foundations of their united fame and power. The armies which they commanded, and the provinces which they had saved, acknowledged not any other sovereigns than their invincible chiefs. The senate and people of Rome revered a stranger who had avenged their captive emperor, and even the insensible son of Valerian accepted Odenathus for his legitimate colleague.

After a successful expedition against the Gothic plunderers of Asia, the Palmyrenian prince returned to the city of Emesa in Syria. Invincible in war, he was there cut off by domestic treason, and his favourite amusement of hunting was the cause, or at least the occasion, of his

death. His nephew Mæonius presumed to dart his javelin before that of his uncle; and, though admonished of his error, repeated the same insolence. As a monarch, and as a sportsman, Odenathus was provoked, took away his horse, a mark of ignominy among the barbarians, and chastised the rash youth by a short confinement. The offence was soon forgotten, but the punishment was remembered; and Mæonius, with a few daring associates, assassinated his uncle in the midst of a great entertainment. Herod, the son of Odenathus, though not of Zenobia, a young man of a soft and effeminate temper, was killed with his father. But Mæonius obtained only the pleasure of revenge by this bloody deed. He had scarcely time to assume the title of Augustus before he was sacrificed by Zenobia to the memory of her husband.

With the assistance of his most faithful friends, she immediately filled the vacant throne, and governed with manly counsels Palmyra, Syria, and the East, above five years. By the death of Odenathus, that authority was at an end which the senate had granted him only as a personal distinction; but his martial widow, disdaining both the senate and Gallienus, obliged one of the Roman generals who was sent against her to retreat into Europe, with the loss of his army and his reputation. Instead of the little passions which so frequently perplex a female reign, the steady administration of Zenobia was guided by the most judicious maxims of policy. If it was expedient to pardon, she could calm her resentment; if it was necessary to punish, she could impose silence on the voice of pity. Her strict economy was accused of avarice; yet on every proper occasion she appeared magnificent and liberal. The neighbouring states of Arabia, Armenia, and Persia, dreaded her enmity and solicited

her alliance. To the dominions of Odenathus, which extended from the Euphrates to the frontiers of Bithynia, his widow added the inheritance of her ancestors, the populous and fertile kingdom of Egypt. The emperor Claudius acknowledged her merit, and was content that, while he pursued the Gothic war, she should assert the dignity of the empire in the East. The conduct however of Zenobia was attended with some ambiguity ; nor is it unlikely that she had conceived the design of erecting an independent and hostile monarchy. She blended with the popular manners of Roman princes the stately pomp of the courts of Asia, and exacted from her subjects the same adoration that was paid to the successors of Cyrus. She bestowed on her three sons a Latin education, and often showed them to the troops adorned with the imperial purple. For herself she reserved the diadem, with the splendid but doubtful title of Queen of the East.

LESSON 3.—*Diocletian's Abdication.*

It was in the twenty-first year of his reign that Diocletian executed his memorable resolution of abdicating the empire ; an action more naturally to have been expected from the elder or the younger Antoninus than from a prince who had never practised the lessons of philosophy either in the attainment or in the use of supreme power. Diocletian acquired the glory of giving to the world the first example of a resignation, which has not been very frequently imitated by succeeding monarchs. The parallel of Charles the fifth however will naturally offer itself to our mind, not only since the eloquence of a modern historian has rendered that name so familiar to an English reader, but from the very strik-

ing resemblance between the characters of the two emperors, whose political abilities were superior to their military genius, and whose specious virtues were much less the effect of nature than of art. The abdication of Charles appears to have been hastened by the vicissitudes of fortune ; and the disappointment of his favourite schemes urged him to relinquish a power which he found inadequate to his ambition. But the reign of Diocletian had flowed with a tide of uninterrupted success ; nor was it till after he had vanquished all his enemies and accomplished all his designs, that he seems to have entertained any serious thoughts of resigning the empire. Neither Charles nor Diocletian were arrived at a very advanced period of life ; since the one was only fifty-five, and the other was no more than fifty-nine years of age : but the active life of those princes, their wars and journeys, the cares of royalty and their application to business, had already impaired their constitutions, and brought on the infirmities of a premature old age.

Notwithstanding the severity of a very cold and rainy winter, Diocletian left Italy soon after the ceremony of his triumph, and began his progress towards the east round the circuit of the Illyrian provinces. From the inclemency of the weather and the fatigue of the journey he soon contracted a slow illness ; and, though he made easy marches, and was generally carried in a close litter, his disorder, before he arrived at Nicomedia, about the end of the summer, was become very serious and alarming. During the whole winter he was confined to his palace : his danger inspired a general and unaffected concern ; but the people could only judge of the various alterations of his health from the joy or consternation which they discovered in the countenances

and behaviour of his attendants. The rumour of his death was for some time universally believed, and it was supposed to be concealed with a view to prevent the troubles that might have happened during the absence of the Cæsar Galerius. At length however, on the first of March, Diocletian once more appeared in public, but so pale and emaciated, that he could scarcely have been recognised by those to whom his person was the most familiar. It was time to put an end to the painful struggle, which he had sustained during more than a year, between the care of his health and that of his dignity. The former required indulgence and relaxation, the latter compelled him to direct, from the bed of sickness, the administration of a great empire. He resolved to pass the remainder of his days in honourable repose, to place his glory beyond the reach of fortune, and to relinquish the theatre of the world to his younger and more active associates.

The ceremony of his abdication was performed in a spacious plain, about three miles from Nicomedia. The emperor ascended a lofty throne, and in a speech, full of reason and dignity, declared his intention, both to the people and to the soldiers who were assembled on this extraordinary occasion. As soon as he had divested himself of the purple, he withdrew from the gazing multitude; and traversing the city in a covered chariot, proceeded without delay to the favourite retirement which he had chosen in his native country of Dalmatia. On the same day, which was the first of May, Maximian, as it had been previously concerted, made his resignation of the imperial dignity at Milan. Even in the splendour of the Roman triumph, Diocletian had meditated his design of abdicating the government. As he wished to secure

the obedience of Maximian, he exacted from him, either a general assurance that he would submit his actions to the authority of his benefactor, or a particular promise that he would descend from the throne whenever he should receive the advice and the example. This engagement, though it was confirmed by the solemnity of an oath before the altar of the Capitoline Jupiter, would have proved a feeble restraint on the fierce temper of Maximian, whose passion was the love of power, and who neither desired present tranquillity nor future reputation. But he yielded, however reluctantly, to the ascendant which his wiser colleague had acquired over him, and retired immediately after his abdication to a villa in Lucania, where it was almost impossible that such an impatient spirit could find any lasting tranquillity.

Diocletian, who from a servile origin had raised himself to the throne, passed the last nine years of his life in a private condition. Reason had dictated, and content seems to have accompanied, his retreat, in which he enjoyed for a long time the respect of those princes to whom he had resigned the possession of the world. It is seldom that minds long exercised in business have formed any habits of conversing with themselves ; and in the loss of power they principally regret the want of occupation. The amusements of letters and of devotion, which afford so many resources in solitude, were incapable of fixing the attention of Diocletian ; but he had preserved, or at least he soon recovered, a taste for the most innocent as well as natural pleasures, and his leisure hours were sufficiently employed in building, planting, and gardening. His answer to Maximian is deservedly celebrated. He was solicited by that restless old man to re-assume the reins of government and the imperial purple.

He rejected the temptation with a smile of pity, calmly observing, that if he could show Maximian the cabbages which he had planted with his own hands at Salona, he should no longer be urged to relinquish the enjoyment of happiness for the pursuit of power. In his conversations with his friends, he frequently acknowledged, that of all arts, the most difficult was the art of reigning ; and he expressed himself on that favourite topic with a degree of warmth which could be the result only of experience. “ How often,” was he accustomed to say, “ is it the interest of four or five ministers to combine together to deceive their sovereign ! Secluded from mankind by his exalted dignity, the truth is concealed from his knowledge ; he can see only with their eyes ; he hears nothing but their misrepresentations. He confers the most important offices upon vice and weakness, and disgraces the most virtuous and deserving among his subjects. By such infamous arts,” added Diocletian, “ the best and wisest princes are sold to the venal corruption of their courtiers.” A just estimate of greatness, and the assurance of immortal fame, improve our relish for the pleasures of retirement ; but the Roman emperor had filled too important a character in the world to enjoy without alloy the comforts and security of a private condition. It was impossible that he could remain ignorant of the troubles which afflicted the empire after his abdication. It was impossible that he could be indifferent to their consequences. Fear, sorrow, and discontent sometimes pursued him into the solitude of Salona. His tenderness, or at least his pride, was deeply wounded by the misfortunes of his wife and daughter ; and the last moments of Diocletian were embittered by some affronts, which Licinius and Constantine might

have spared the father of so many emperors, and the first author of their own fortune. A report, though of a very doubtful nature, has reached our times, that he withdrew himself from their power by a voluntary death.

LESSON 4.—*Discovery of a Passage by the Cape of Good Hope.*

Five years had elapsed since the discovery of the new world, and ten since that of the cape of Good Hope, before Emanuel king of Portugal came to the resolution to send a fleet to India. The person chosen to command it was Vasco de Gama, a gentleman of the court, well known for his prudence, courage, and skill in navigation. Three vessels, carrying in all about sixty men, were fitted out for this great expedition. Vasco de Gama set sail the 8th of July 1497: he steered direct for the Cape Verd isles; and having cleared them, directed his course to the south, till he came to anchor in the bay of St. Helena, on the western coast of Africa, a little to the north of the cape of Good Hope. Leaving this bay, he arrived in two days at the southern extremity of Africa; but in his attempt to sail towards the east, he had to struggle with the strong southeast winds which blow there continually during the summer season. His crews, disheartened by this unfavourable circumstance, wished to force him to return; but he found means to soothe their impatience, and by his firmness and address overcame every obstacle.

Steering to the east, along the southern shore of Africa, he anchored in the bay of St. Blaise, and arrived a little after at the islet of La Cruz, where the discoveries of Diaz had terminated. Here the coast of Af-

rica begins to turn towards the north, and the Portuguese entered, for the first time, the Indian seas. Vasco de Gama, whose intention was to find the countries which Covilham had visited, was careful never to lose sight of land ; and wherever the country seemed to be inhabited, he always sent some persons on shore to make inquiries, or even went himself when he saw symptoms of a greater population : but not receiving any intelligence of importance from the natives of the coast, he continued his course, and even passed by the country of Sofala, where he supposed that Covilham might be, without seeing anything worthy of fixing his attention. At length, in the beginning of March 1498, he cast anchor before the city of Mozambique, inhabited at that time by Moors or Mahometan Arabs, who lived under the government of a prince of their own religion, and carried on a great trade with the Red sea and the Indies. The hope of traffic with the strangers procured the Portuguese at first a favourable reception : but as soon as it was known that they were Christians, every stratagem that could be devised was resorted to in order to destroy them. Gama, obliged to fly from their snares and treachery, directed his course northward for Quiloa, guided by a pilot of Mozambique, whom he had taken with him ; but, having approached the shore to the north of that place, the current prevented him from returning along the coast, and in consequence he steered for Mombasa. This city, better built than Mozambique, and carrying on a still greater trade, was in like manner inhabited by Mahometans, who treated the Portuguese with the same artful hostility. Gama departed without obtaining any information or assistance, and, advancing eighteen leagues, arrived at Melinda, where he was more fortunate. Al-

though the inhabitants of this city also were Mahometans, it would appear that commerce had softened and refined their manners. The sovereign of the country received Gama with every expression of favour : he went on board the Portuguese fleet, and invited Gama to return his visit ; but the Portuguese commander, instructed by the past, was unwilling to expose himself to the bigotry of the people, and declined accepting the invitation ; he sent however some of his officers in his stead, who were treated with honour and cordiality.

There were at the same time several ships from India in the harbour of Melinda, and even some Christians of that country, who warned Gama to be upon his guard, and gave him some information which proved eventually of great importance. Malemo Cana, an Indian of Guzarat, whom the king of Melinda had given to Gama as his pilot, was one of the most experienced navigators of those seas. It is said that he expressed no surprise when he saw the astrolabe with which the Portuguese observed the meridian altitude of the sun : he said that the pilots of the Red sea made use of instruments of similar construction.

The fleet of Gama went from Melinda to Calicut in three and twenty days : this city, at that time the richest and most commercial of all India, was governed by a prince who bore the title of Zamorin. The messengers of Gama found means to be introduced to the ministers of this prince. The first negotiations were so successful, that the Portuguese were immediately permitted to enter the port ; and the Zamorin consented to receive Gama with the same honours which were usually shown to the ambassadors of the greatest monarchs. But the perfidious conduct of the Mahometans had rendered

the Portuguese so suspicious and mistrustful, that the officers of the fleet solicited Gama to abandon his intention of going ashore and entrusting his person to the natives.

In a council which was held on the occasion, his brother Paul de Gama represented to him, in the strongest light, the dangers to which he was exposed ; but Vasco was immovable : he declared his intention of landing on the following day, and ordered his brother to command the fleet in his absence : his spirit was exalted above the contemplation of danger, and the glory of his country engrossed all his thoughts. He advised his brother, in case the accidents which were predicted should take place, not to avenge his death, but to depart with the fleet without loss of time, to announce to the king the discovery of India and his unhappy fate.

Next morning Vasco de Gama went on shore, accompanied by twelve resolute men, whom he had chosen to attend him. He was received with great pomp ; and as he had to go five or six miles beyond Calicut, to the country house of the Zamorin, he crossed the city through the midst of an immense multitude, who viewed the strangers with an admiration which was heightened no doubt by the singularity of their costume, so unlike any that had hitherto been seen in India. The Portuguese admiral arrived next day at the Zamorin's country house : the reception which he experienced at his first audience was favourable in the extreme ; and Gama flattered himself that he should obtain for his country the privilege of carrying on an advantageous trade with Calicut. But circumstances soon occurred to thwart his expectations. The animosity of the Mahometans had nearly proved fatal to him : at Mozambique and Mombasa, they looked

upon the Portuguese as dangerous rivals in their trade, and were resolved to ruin them, if possible. They represented to the Zamorin that these strangers were pirates, who found their way into the Indian seas solely in order to disturb the tranquillity of his states, and to carry on their usual avocation of pillage. These insinuations produced the desired effect. Gama had forgotten to bring with him a present worthy of a great prince : the few articles which he offered to the ministers appeared to them of so little value, that they were rejected with contempt. This first disagreement was followed by a multitude of others ; and at length the dissatisfaction of both sides had increased to such a degree, that Gama feared either that he should be detained as a prisoner, or perhaps put to death along with his companions. He received private information that, under pretence of a reconciliation, it was intended to draw the fleet into such a situation that it might be easily destroyed : he communicated this intelligence to his brother, by whose prudent measures the schemes of the Moors were completely frustrated. Vasco, on the other side, succeeded by his firmness and address in gaining the respect of the Indian prince and his ministers ; and the negotiations being renewed, he convinced them of the advantages that were to be derived from an alliance with the Portuguese. While thus favourably disposed, they allowed him to return to his vessel.

As soon as Vasco de Gama got on board his fleet, he sailed without loss of time ; and, having repaired his ships at the Angediva islands, a little to the north of Calicut, he steered direct for Europe, to give an account of his discovery. In passing Melinda, he took on board an ambassador from the king of that country, the only

friend whom the Portuguese had found in the course of their voyage. He doubled the cape of Good Hope in March 1499, and arrived in Lisbon in September of the same year, that is to say, about two years after his departure. King Emanuel received Vasco de Gama with studious magnificence, celebrated his safe return with festivals, bestowed on him titles of nobility, and created him admiral of the Indies.

LESSON 5.—*Queen Elizabeth.*

There are few great personages in history who have been more exposed to the calumny of enemies and the adulation of friends than queen Elizabeth; and yet there is scarcely any whose reputation has been more certainly determined by the unanimous consent of posterity. The unusual length of her administration, and the strong features of her character, were able to overcome all prejudices; and, obliging her detractors to abate much of their invectives, and her admirers somewhat of their panegyrics, have at last, in spite of political factions, and, what is more, of religious animosities, produced a uniform judgment with regard to her conduct. Her vigour, her constancy, her magnanimity, her penetration, vigilance, and address, are allowed to merit the highest praises, and appear not to have been surpassed by any person that ever filled a throne: a conduct less rigorous, less imperious, more sincere, more indulgent to her people, would have been requisite to form a perfect character. By the force of her mind she controlled all her more active and stronger qualities, and prevented them from running into excess: her heroism was exempt from temerity, her frugality from avarice, her

friendship from partiality; her active temper from turbulence and a vain ambition : she guarded not herself with equal care or equal success from less infirmities ; the rivalship of beauty, the desire of admiration, the jealousy of love, and the sallies of anger.

Her singular talents for government were founded equally on her temper and on her capacity. Endowed with a great command over herself, she soon obtained an uncontrolled ascendant over her people ; and while she merited all their esteem by her real virtues, she also engaged their affections by her pretended ones. Few sovereigns of England succeeded to the throne in more difficult circumstances ; and none ever conducted the government with such uniform success and felicity. Though unacquainted with the practice of toleration, the true secret for managing religious factions, she preserved her people, by her superior prudence, from those confusions in which theological controversy had involved all the neighbouring nations : and though her enemies were the most powerful princes of Europe, the most active, the most enterprising, the least scrupulous, she was able by her vigour to make deep impressions on their states ; her own greatness meanwhile remained untouched and unimpaired.

The wise ministers and brave warriors who flourished under her reign, share the praise of her success ; but instead of lessening the applause due to her, they make a great addition to it. They owed all of them their advancement to her choice ; they were supported by her constancy ; and with all their abilities they were never able to acquire any undue ascendant over her. In her family, in her court, in her kingdom, she remained equally mistress : the force of the tender passions over her was

great, but the force of her mind was still superior ; and the combat which her victory visibly cost her, serves only to display the firmness of her resolution and the loftiness of her ambitious sentiments.

The fame of this princess, though it has surmounted the prejudices both of faction and bigotry, yet lies still exposed to another prejudice, which is more durable because more natural, and which, according to the different views in which we survey her, is capable either of exalting beyond measure or diminishing the lustre of her character. This prejudice is founded on the consideration of her sex. When we contemplate her as a woman, we are apt to be struck with the highest admiration of her great qualities and extensive capacity ; but we are also apt to require some more softness of disposition, some greater lenity of temper, some of those amiable weaknesses by which her sex is distinguished. But the true method of estimating her merit is to lay aside all these considerations, and consider her merely as a rational being, placed in authority, and entrusted with the government of mankind. We may find it difficult to reconcile our fancy to her as a wife or a mistress ; but her qualities as a sovereign, though with some considerable exceptions, are the object of undisputed applause and approbation.

LESSON 6.—*Execution of Mary Queen of Scotland.*

The two earls came to Fotheringay castle, and being introduced to Mary informed her of their commission, and desired her to prepare for death next morning at eight o'clock. She seemed no wise terrified, though somewhat surprised, with the intelligence. She said, with a cheerful and even a smiling countenance, that she did

not think the queen her sister would have consented to her death, or have executed the sentence against a person not subject to the laws and jurisdiction of England. But as such is her will, said she, "death, which puts an end to all my miseries, shall be to me most welcome ; nor can I esteem that soul worthy the felicities of heaven, which cannot support the body under the horrors of the last passage to these blissful mansions." She then requested the two noblemen that they would permit some of her servants, and particularly her confessor, to attend her : but they told her, that compliance with this last demand was contrary to their conscience, and that Doctor Fletcher, Dean of Peterborough, a man of great learning, should be present to instruct her in the principles of true religion. Her refusal to have any conference with this divine inflamed the zeal of the Earl of Kent, and he bluntly told her, that her death would be the life of their religion ; as, on the contrary, her life would have been the death of it. Mention being made of Babington, she constantly denied his conspiracy to have been at all known to her ; and the revenge of her wrongs she resigned into the hands of the Almighty.

When the carls had left her, she ordered supper to be hastened, that she might have more leisure after it to finish the few affairs which remained to her in this world, and to prepare for her passage to another. It was necessary for her, she said, to take some sustenance, lest a failure of her bodily strength should depress her spirits on the morrow, and lest her behaviour should thereby betray a weakness unworthy of herself. She supped sparingly, as her manner usually was, and her wonted cheerfulness did not even desert her on this occasion. She comforted her servants under the affliction which

overwhelmed them, and which was too violent for them to conceal it from her. Turning to Burgoin her physician, she asked him whether he did not remark the great and invincible force of truth. "They pretend," said she, "that I must die, because I conspired against their queen's life: but the Earl of Kent avowed that there was no other cause of my death than the apprehensions which, if I should live, they entertain for their religion. My constancy in the faith is my real crime: the rest is only a colour invented by interested and designing men." Towards the end of supper she called in all her servants and drank to them: they pledged her, in order, on their knees, and craved her pardon for any past neglect of their duty: she deigned, in return, to ask their pardon for her offences towards them, and a plentiful effusion of tears attended this last solemn farewell and exchange of mutual forgiveness.

Mary's care of her servants was the sole remaining affair which employed her concern. She perused her will, in which she had provided for them by legacies: she ordered the inventory of her goods, clothes, and jewels, to be brought her: and she wrote down the names of those to whom she bequeathed each particular: to some she distributed money with her own hands; and she adapted the recompence to their different degrees of rank and merit. She wrote also letters of recommendation for her servants to the French king, and to her cousin the Duke of Guise, whom she made the chief executor of her testament. At her wonted time she went to bed; slept some hours; and then rising, spent the rest of the night in prayer. Having foreseen the difficulty of exercising the rites of her religion, she had had the precaution to obtain a consecrated host from the hands of Pope Pius;

and she had reserved the use of it for this last period of her life. By this expedient she supplied, as much as she could, the want of a priest and confessor, who were refused her.

Towards the morning she dressed herself in a rich habit of silk and velvet, the only one which she had reserved to herself. She told her maids, that she would willingly have left to them this dress, rather than the plain garb which she wore the day before ; but it was necessary for her to appear at the ensuing solemnity in a decent habit.

Thomas Andrews, sheriff of the county, entered the room, and informed her that the hour was come, and that he must attend her to the place of execution. She replied that she was ready, and bidding adieu to her servants, she leaved on two of Sir Amias Paulet's guards, because of an infirmity in her limbs ; and she followed the sheriff with a serene and composed countenance. In passing through a hall adjoining to her chamber, she was met by the Earls of Shrewsbury and Kent, Sir Amias Paulet, Sir Drue Drury, and many other gentlemen of distinction. Here she also found Sir Andrew Melville, her steward, who flung himself on his knees before her ; and wringing his hands, cried aloud, " Ah, madam, unhappy me ! what man was ever before the messenger of such heavy tidings as I must carry, when I shall return to my native country, and shall report that I saw my gracious queen and mistress beheaded in England !" His tears prevented farther speech : and Mary too felt herself moved more from sympathy than affliction. " Cease, my good servant," said she, " cease to lament : thou hast cause rather to rejoice than to mourn ; for now shalt thou see the troubles of Mary Stuart receive their long-

expected period and completion. Know," continued she, "good servant, that all the world at best is vanity, and subject still to more sorrow than a whole ocean of tears is able to bewail. But I pray thee carry this message from me, that I die a true woman to my religion, and unalterable in my affections to Scotland and to France. Heaven forgive them that have long desired my end, and have thirsted for my blood as the hart panteth after the water brooks! O God," added she, "thou that art the author of truth, and truth itself, thou knowest the inmost recesses of my heart: thou knowest that I was ever desirous to preserve an entire union between Scotland and England, and to obviate the source of all these fatal discords! But recommend me, Melville, to my son, and tell him, that, notwithstanding all my distresses, I have done nothing prejudicial to the state and kingdom of Scotland." After these words, reclining herself, with weeping eyes and face bedewed with tears, she kissed him. "And so," said she, "good Melville, farewell: once again farewell, good Melville; and grant the assistance of thy prayers to thy queen and mistress."

She next turned to the noblemen who attended her, and made a petition in behalf of her servants, that they might be well treated, be allowed to enjoy the presents which she had made them, and be sent safely into their own country. Having received a favourable answer, she preferred another request, that they might be permitted to attend her at her death; in order, said she, that their eyes may behold, and their hearts bear witness, how patiently their queen and mistress can submit to her execution, and how constantly she perseveres in her attachment to her religion. The Earl of Kent opposed this desire, and told her, that they would be apt by their

speeches and cries to disturb both herself and the spectators : he was also apprehensive lest they should practise some superstition not meet for him to suffer ; such as dipping their handkerchiefs in her blood : for that was the instance which he made use of. “ My lord,” said the queen of Scots, “ I will give my word (although it be but dead) that they shall not incur any blame in any of the actions which you have named : but alas ! poor souls ! it would be a great consolation to them to bid their mistress farewell. And I hope,” added she, “ that your mistress, being a maiden queen, would vouchsafe in regard of womanhood, that I should have some of my own people about me at my death. I know that her majesty hath not given you any such strict command, but that you might grant me a request of far greater courtesy, even though I were a woman of inferior rank to that which I bear.” Finding that the Earl of Kent persisted still in his refusal, her mind, which had fortified itself against the terrors of death, was affected by this indignity, for which she was not prepared. “ I am cousin to your queen,” cried she, “ and descended from the blood-royal of Henry VII. and a married queen of France, and an anointed queen of Scotland.” The commissioners, perceiving how invidious their obstinacy would appear, conferred a little together, and agreed that she might carry a few of her servants along with her. She made choice of four men and two maid servants for that purpose.

She then passed into another hall, where was erected the scaffold covered with black ; and she saw, with an undismayed countenance, the executioners and all the preparations of death. The room was crowded with spectators ; and no one was so steeled against all senti-

ments of humanity as not to be moved when he reflected on her royal dignity, considered the surprising train of her misfortunes, beheld her mild but inflexible constancy, recalled her amiable accomplishments, and surveyed her beauties, which though faded by years, and yet more by her afflictions, still discovered themselves in this fatal moment. Here the warrant for her execution was read to her ; and during this ceremony she was silent, but showed in her behaviour an indifference and unconcern, as if the business had nowise regarded her. Before the executioners performed their office, the dean of Peterborough stepped forth ; and though the queen frequently told him that he need not concern himself about her, that she was settled in the ancient catholic and Roman religion, and that she meant to lay down her life in defence of that faith, he still thought it his duty to persist in his lectures and exhortations, and to endeavour her conversion. The terms which he employed were, under colour of pious instructions, cruel insults on her unfortunate situation ; and besides their own absurdity, may be regarded as the most mortifying indignities to which she had ever yet been exposed. He told her that the queen of England had on this occasion shown a tender care of her ; and notwithstanding the punishment justly to be inflicted on her for her manifold trespasses, was determined to use every expedient for saving her soul from that destruction with which it was so nearly threatened : that she was now standing upon the brink of eternity, and had no other means of escaping endless perdition than by repenting of her former wickedness, by justifying the sentence pronounced against her, by acknowledging the queen's favours, and by exerting a true and lively faith in Christ Jesus : that the scriptures

were the only rule of doctrine, the merits of Christ the only means of salvation ; and if she trusted in the inventions or devices of men, she must expect in an instant to fall into utter darkness, into a place where shall be weeping, wailing, and gnashing of teeth : that the hand of death was upon her, the axe was laid to the root of the tree, the throne of the great Judge of heaven was erected, the book of her life was spread wide, and the particular sentence and judgment was ready to be pronounced upon her : and that it was now, during this important moment, in her choice, either to rise to the resurrection of life, and hear that joyful salutation, ‘Come, ye blessed of my Father ;’ or to share the resurrection of condemnation, replete with sorrows and anguish ; and to suffer that dreadful denunciation, ‘Go, ye cursed, into everlasting fire.’

During this discourse Mary could not sometimes forbear betraying her impatience, by interrupting the preacher ; and the dean, finding that she had profited nothing by his lecture, at last bade her change her opinion, repent of her former wickedness, and settle her faith upon this ground, that only in Christ Jesus could she hope to be saved. She answered again and again, with great earnestness, “Trouble not yourself any more about the matter ; for I was born in this religion ; I have lived in this religion ; and in this religion I am resolved to die.” Even the two earls perceived that it was fruitless to harass her any farther with theological disputes ; and they ordered the dean to desist from his unseasonable exhortations, and to pray for her conversion. During the dean’s prayer she employed herself in private devotion from the office of the Virgin ; and after he had finished she pronounced aloud some petitions in English for the

afflicted church, for an end of her own troubles, for her son, and for queen Elizabeth ; and prayed God that that princess might long prosper, and be employed in his service. The Earl of Kent, observing that in her devotions she made frequent use of the crucifix, could not forbear reproving her for her attachment to that popish trumpery, as he termed it : and he exhorted her to have Christ in her heart, not in her hand. She replied with presence of mind, that it was difficult to hold such an object in her hand without feeling her heart touched with some compunction.

She now began, with the aid of her two women, to disrobe herself ; and the executioner also lent his hand to assist them. She smiled, and said that she was not accustomed to undress herself before so large a company, nor to be served by such valets. Her servants, seeing her in this condition, ready to lay her head upon the block, burst into tears and lamentations. She turned about to them ; put her finger upon her lips, as a sign of imposing silence upon them ; and having given them her blessing, desired them to pray for her. One of her maids, whom she had appointed for that purpose, covered her eyes with a handkerchief : she laid herself down without any sign of fear or trepidation ; and her head was severed from her body at two strokes by the executioner. He instantly held it up to the spectators, streaming with blood, and agitated with the convulsions of death : the Dean of Peterborough alone exclaimed, “ So perish all queen Elizabeth’s enemies !” The Earl of Kent alone replied, “ Amen !” The attention of all the other spectators was fixed on the melancholy scene before them ; and zeal and flattery alike gave place to present pity and admiration of the expiring princess.

LESSON 7.—*Charles the Fifth's Abdication.*

During the negotiation of the treaty at Rome and Paris, an event happened which seemed to render the fears that had given rise to it vain, and the operations which were to follow upon it unnecessary. This was the emperor's resignation of his hereditary dominions to his son Philip ; together with his resolution to withdraw entirely from any concern in business or the affairs of this world, in order that he might spend the remainder of his days in retirement and solitude. Though it requires neither deep reflection nor extraordinary discernment to discover that the state of royalty is not exempt from cares and disappointment ; though most of those who are exalted to a throne find solicitude and satiety and disgust to be their perpetual attendants in that envied pre-eminence ; yet to descend voluntarily from the supreme to a subordinate station, and to relinquish the possession of power in order to attain the enjoyment of happiness, seems to be an effort too great for the human mind. Several instances indeed occur in history of monarchs who have quitted a throne, and have ended their days in retirement : but they were either weak princes, who took this resolution rashly, and repented of it as soon as it was taken ; or unfortunate princes, from whose hands some stronger rival had wrested their sceptre, and compelled them to descend with reluctance into a private station. Diocletian is perhaps the only prince, capable of holding the reins of government, who ever resigned them from deliberate choice, and who continued during many years to enjoy the tranquillity of retirement, without fetching one penitent sigh or casting back one look of desire towards the power or dignity which he had abandoned.

No wonder then that Charles's resignation should fill all Europe with astonishment, and give rise, both among his contemporaries and among the historians of that period, to various conjectures concerning the motives which determined a prince, whose ruling passion had been uniformly the love of power, at the age of fifty-six, when objects of ambition continue to operate with full force on the mind, and are pursued with the greatest ardour, to take a resolution so singular and unexpected. But while many authors have imputed it to motives so frivolous and fantastical as can hardly be supposed to influence any reasonable mind ; while others having imagined it to be the result of some profound scheme of policy ; historians, more intelligent and better informed, neither ascribe it to caprice, nor search for mysterious secrets of state, where simple and obvious causes will fully account for the emperor's conduct. Charles had been attacked early in life with the gout, and notwithstanding all the precautions of the most skilful physicians, the violence of the distemper increased as he advanced in age, and the fits became every year more frequent as well as more severe. Not only was the vigour of his constitution broken, but the faculties of his mind were impaired by the excruciating torments which he endured. During the continuance of the fits, he was altogether incapable of applying to business ; and even when they began to abate, as it was only at intervals that he could attend to what was serious, he gave up a great part of his time to trifling and even childish occupations, which served to relieve or to amuse his mind, enfeebled and worn out with excess of pain. Under these circumstances, the conduct of such affairs as occurred of course in governing so many kingdoms, was a burden more than sufficient ; but to push forward and complete

the vast schemes which the ambition of his more active years had formed, or to keep in view and carry on the same great system of policy, extending to every nation in Europe, and connected with the operations of every different court, were functions which so far exceeded his strength that they oppressed and overwhelmed his mind. As he had been long accustomed to view the business of every department, whether civil or military or ecclesiastical, with his own eyes, and to decide concerning it according to his own ideas, it gave him the utmost pain when he felt his infirmities increase so fast upon him that he was obliged to commit the conduct of all affairs to his ministers. He imputed every misfortune which befell him, and every miscarriage that happened, even when the former was unavoidable or the latter accidental, to his inability to take the inspection of business himself. He complained of his hard fortune in being opposed in his declining years to a rival who was in the full vigour of life, and that, while Henry could take and execute all his resolutions in person, he should now be reduced, both in council and in action, to rely on the talents and exertions of other men. Having thus grown old before his time, he wisely judged it more decent to conceal his infirmities in some solitude than to expose them any longer to the public eye; and prudently determined not to forfeit the fame or lose the acquisitions of his better years, by struggling with a vain obstinacy to retain the reins of government, when he was no longer able to hold them with steadiness or to guide them with address.

But though Charles had revolved this scheme in his mind for several years, and had communicated it to his sisters the dowager queens of France and Hungary, who

not only approved of his intention, but offered to accompany him to whatever place of retreat he should choose ; several things had hitherto prevented his carrying it into execution. He could not think of loading his son with the government of so many kingdoms, until he should attain such maturity of age and of abilities as would enable him to sustain that weighty burden. But, as Philip had now reached his twenty-eighth year, and had been early accustomed to business, for which he discovered both inclination and capacity, it can hardly be imputed to the partiality of paternal affection that his scruples with regard to this point were entirely removed ; and that he thought he might place his son, without further hesitation or delay, on the throne which he himself was about to abandon. His mother's situation had been another obstruction in his way : for, although she had continued almost fifty years in confinement, and under the same disorder of mind which concern for her husband's death brought upon her, yet the government of Spain was still vested in her jointly with the emperor : her name was inserted together with his in all the public instruments issued in that kingdom ; and such was the fond attachment of the Spaniards to her, that they would probably have scrupled to recognise Philip as their sovereign, unless she had consented to assume him as her partner on the throne. Her utter incapacity for business rendered it impossible to obtain her consent. But her death, which happened this year, removed this difficulty ; and as Charles upon that event became sole monarch of Spain, it left the succession open to his son. The war with France had likewise been a reason for retaining the administration of affairs in his own hand, as he was extremely solicitous to terminate it, that

he might give up his kingdom to his son at peace with all the world. But as Henry had discovered no disposition to close with any of his overtures, and had even rejected proposals of peace which were equal and moderate, in a tone that seemed to indicate a fixed purpose of continuing hostilities, he saw that it was vain to wait longer in expectation of an event which, however desirable, was altogether uncertain.

As this then appeared to be the proper juncture for executing the scheme which he had long meditated, Charles resolved to resign his kingdoms to his son, with a solemnity suitable to the importance of the transaction, and to perform this last act of sovereignty with such formal pomp as might leave a lasting impression on the minds not only of his subjects but of his successor. With this view he called Philip out of England, where the peevish temper of his queen, which increased with her despair of having issue, rendered him extremely unhappy ; and the jealousy of the English left him no hopes of obtaining the direction of their affairs. Having assembled the states of the Low Countries at Brussels, on the 25th of October, Charles seated himself for the last time in the chair of state, on one side of which was placed his son, and on the other his sister the queen of Hungary, regent of the Netherlands, with a splendid retinue of the princes of the empire and grandees of Spain standing behind him. The president of the council of Flanders, by his command, explained in a few words his intention in calling this extraordinary meeting of the states. He then read the instruments of resignation, by which Charles surrendered to his son Philip all his territories, jurisdiction, and authority in the Low Countries, absolving his subjects there from the oath of allegiance to him, which

he required them to transfer to Philip his lawful heir, and to serve him with the same loyalty and zeal which they had manifested during so long a course of years in support of his government. •

Charles then rose from his seat, and, leaning on the shoulder of the prince of Orange, because he was unable to stand without support, addressed himself to the audience ; and from a paper which he held in his hand, in order to assist his memory, recounted with dignity, but without ostentation, all the great things which he had undertaken and performed since the commencement of his administration. He observed, that from the seventeenth year of his age he had dedicated all his thoughts and attention to public objects, reserving no portion of his time for the indulgence of his ease, and very little for the enjoyment of private pleasure ; that either in a pacific or hostile manner he had visited Germany nine times, Spain six times, France four times, Italy seven times, the Low Countries ten times, England twice, Africa as often, and had made eleven voyages by sea ; that while his health permitted him to discharge his duty, and the vigour of his constitution was equal in any degree to the arduous office of governing such extensive dominions, he had never shunned labour, nor repined under fatigue ; that now, when his health was broken and his vigour exhausted by the rage of an incurable distemper, his growing infirmities admonished him to retire ; nor was he so fond of reigning as to retain the sceptre in an impotent hand, which was no longer able to protect his subjects, or to secure to them the happiness which he wished they should enjoy ; that, instead of a sovereign worn out with diseases and scarcely half alive, he gave them one in the prime of life, accustomed already to govern, and who

added to the vigour of youth all the attention and sagacity of maturer years ; that if, during the course of a long administration, he had committed any material error in government, or if, under the pressure of so many and great affairs, and amidst the attention which he had been obliged to give to them, he had either neglected or injured any of his subjects, he now implored their forgiveness ; that for his part he should ever retain a grateful sense of their fidelity and attachment, and would carry the remembrance of it along with him to the place of his retreat, as his sweetest consolation, as well as the best reward for all his services ; and in his last prayers to Almighty God, would pour forth his most earnest petitions for their welfare.

Then turning towards Philip, who fell on his knees and kissed his father's hand, " If," said he, " I had left you by my death this rich inheritance, to which I have made such large additions, some regard would have been justly due to my memory on that account ; but now, when I voluntarily resign to you what I might have still retained, I may well expect the warmest expression of thanks on your part. With these however I dispense, and shall consider your concern for the welfare of your subjects, and your love of them, as the best and most acceptable testimony of your gratitude to me. It is in your power, by a wise and virtuous administration, to justify the extraordinary proof which I this day give of my paternal affection, and to demonstrate that you are worthy of the confidence which I repose in you. Preserve an inviolable regard for religion ; maintain the catholic faith in its purity ; let the laws of your country be sacred in your eyes ; encroach not on the rights and privileges of your people ; and if the time should ever

come: when you shall wish to enjoy the tranquillity of private life, may you have a son endowed with such qualities that you can resign your sceptre to him with as much satisfaction as I give up mine to you."

As soon as Charles had finished this long address to his subjects and to their new sovereign, he sank into the chair, exhausted and ready to faint with the fatigue of such an extraordinary effort. During his discourse the whole audience melted into tears, some from admiration of his magnanimity, others softened by the expressions of tenderness towards his son and of love to his people; and all were affected with the deepest sorrow at losing a sovereign, who during his administration had distinguished the Netherlands, his native country, with particular marks of his regard and attachment.

Philip then arose from his knees, and after returning thanks to his father with a low and submissive voice, for the royal gift which his unexampled bounty had bestowed upon him, he addressed the assembly of the states, and, regretting his inability to speak the Flemish language with such facility as to express what he felt on this interesting occasion, as well as what he owed to his good subjects in the Netherlands, he begged that they would permit Granvelle, bishop of Arras, to deliver what he had given him in charge to speak in his name. Granvelle, in a long discourse, expatiated on the zeal with which Philip was animated for the good of his subjects, on his resolution to devote all his time and talents to the promoting of their happiness, and on his intention to imitate his father's example in distinguishing the Netherlands with peculiar marks of his regard. Maes, a lawyer of great eloquence, replied in the name of the states, with large professions of their fidelity and affection to their new sovereign.

Then Mary, queen dowager of Hungary, resigned the regency with which she had been entrusted by her brother during the space of twenty-five years. Next day, Philip, in presence of the states, took the usual oaths to maintain the rights and privileges of his subjects ; and all the members, in their own name and in that of their constituents, swore allegiance to him.

A few weeks after this transaction, Charles, in an assembly no less splendid, and with a ceremonial equally pompous, resigned to his son the crowns of Spain, with all the territories depending on them, both in the old and the new world. Of all these vast possessions he reserved nothing for himself but an annual pension of a hundred thousand crowns, to defray the charges of his family, and to afford him a small sum for acts of beneficence and charity.

LESSON 8.—*Execution of Lady Jane Grey.*

The insurrections of the time proved fatal to Lady Jane Grey, as well as to her husband : the Duke of Suffolk's guilt was imputed to her ; and though the rebels and malcontents seemed chiefly to rest their hopes on the Lady Elizabeth and the Earl of Devonshire, the queen, incapable of generosity or clemency, determined to remove every person from whom the least danger could be apprehended. Warning was given to Lady Jane to prepare for death ; a doom which she had long expected, and which the innocence of her life, as well as the misfortunes to which she had been exposed, rendered no wise unwelcome to her. The queen's zeal, under colour of tender mercy to the prisoner's soul, induced her to send divines, who harassed her with perpetual disputation ; and even a reprieve for three days was granted her,

in hopes that she would be persuaded during that time to pay, by a timely conversion, some regard to her eternal welfare. The Lady Jane had presence of mind, in those melancholy circumstances, not only to defend her religion by all the topics then in use, but also to write a letter to her sister in the Greek language; in which, besides sending her a copy of the scriptures in that tongue, she exhorted her to maintain, in every fortune, a like steady perseverance. On the day of her execution, her husband, Lord Guilford, desired permission to see her; but she refused her consent, and informed him by a message, that the tenderness of their parting would overcome the fortitude of both, and would too much unbend their minds from that constancy which their approaching end required of them: their separation, she said, would be only for a moment; and they would soon rejoin each other in a scene where their affections would be for ever united, and where death, disappointment, and misfortunes could no longer have access to them, or disturb their eternal felicity.

It had been intended to execute the Lady Jane and Lord Guilford together on the same scaffold at Tower-hill; but the council, dreading the compassion of the people for their youth, beauty, innocence, and noble birth, changed their orders, and gave directions that she should be beheaded within the verge of the Tower. She saw her husband led to execution; and having given him from the window some token of her remembrance, she waited with tranquillity till her own appointed hour should bring her to a like fate. She even saw his headless body carried back in a cart; and found herself more confirmed by the reports which she heard of the constancy of his end than shaken by so tender and melancholy a spec-

tacle. Sir John Gage, constable of the Tower, when he led her to execution, desired her to bestow on him some small present, which he might keep as a perpetual memorial of her : she gave him her table-book, on which she had just written three sentences on seeing her husband's dead body ; one in Greek, another in Latin, a third in English. The purport of them was, that human justice was against his body, but divine mercy would be favourable to his soul ; that if her fault deserved punishment, her youth at least, and her imprudence, were worthy of excuse ; and that God and posterity, she trusted, would show her favour. On the scaffold she made a speech to the bystanders ; in which the mildness of her disposition led her to take the blame wholly on herself, without uttering one complaint against the severity with which she had been treated. She said that her offence was not the having laid her hand upon the crown, but the not rejecting it with sufficient constancy : that she had less erred through ambition than through reverence to her parents, whom she had been taught to respect and obey : that she willingly received death as the only satisfaction which she could now make to the injured state ; and though her infringement of the laws had been constrained, she should show, by her voluntary submission to their sentence, that she was desirous to atone for that disobedience into which too much filial piety had betrayed her : that she had justly deserved this punishment for being made the instrument, though the unwilling instrument, of the ambition of others : and that the story of her life, she hoped, might at least be useful, by proving that innocence excuses not great misdeeds, if they tend anywise to the destruction of the commonwealth. After uttering these words, she caused herself to be dis-

robed by her women ; and with a steady serene countenance submitted herself to the executioner.

LESSON 9.—*The Plague of London.*

We now proceed to record one of the most calamitous visitations ever experienced by the English or any other nation : we refer to the plague of London in 1665. In the depth of the previous winter, two or three isolated cases of plague had occurred in the outskirts of the metropolis. The fact excited alarm, and directed the attention of the public to the weekly variations in the bills of mortality. On the one hand, the cool temperature of the air, and the frequent changes in the weather, were hailed as favourable circumstances ; on the other, it could not be concealed that the number of deaths, from whatever cause it arose, was progressively on the advance. In this state of suspense, alternately agitated by their hopes and fears, men looked to the result with the most intense anxiety ; and at length, about the end of May, under the influence of a warmer sun, and with the aid of a close and stagnant atmosphere, the evil burst forth in all its terrors. From the centre of St. Giles's the infection spread with rapidity over the adjacent parishes, threatened the court at Whitehall, and in defiance of every precaution stole its way into the city. A general panic ensued. The nobility and gentry were the first to flee ; the royal family followed ; and then all who valued their personal safety more than the consideration of home and interest prepared to imitate the example. For some weeks the tide of emigration flowed from every outlet towards the country : it was checked at last by the refusal of the lord-mayor to grant certificates of health, and by the opposition of the neighbouring townships,

which rose in their own defence, and formed a barrier round the devoted city.

The absence of the fugitives, and the consequent cessation of trade and breaking up of establishments, served to aggravate the calamity. It was calculated that forty thousand servants had been left without a home, and the number of artisans and labourers thrown out of employment was still more considerable. It is true that the charity of the opulent seemed to keep pace with the progress of distress. The king subscribed the weekly sum of £1000; the city, of £600; the queen dowager, the archbishop of Canterbury, the earl of Craven, and the lord mayor, distinguished themselves by the amount of their benefactions; and the magistrates were careful to ensure a constant supply of provisions in the markets: yet the families that depended on casual relief for the means of subsistence were necessarily subjected to privations, which rendered them more liable to receive and less able to subdue the contagion. The mortality was at first confined chiefly to the lower classes, carrying off in a larger proportion the children than the adults, the females than the men. But by the end of June, so rapid was the diffusion, so destructive were the ravages of the disease, that the civil authorities deemed it time to exercise the powers with which they had been invested by an act of James I. "for the charitable relief and ordering of persons infected with the plague." 1st. They divided the parishes into districts, and allotted to each district a competent number of officers, under the denomination of examiners, searchers, nurses, and watchmen. 2d. They ordered that the existence of the disease, wherever it might penetrate, should be made known to the public by a red cross, one foot in length, painted on

the door, with the words "Lord have mercy on us" placed above it. From that moment the house was closed; all egress for the space of one month was inexorably refused; and the wretched inmates were doomed to remain under the same roof, communicating death one to the other. Of these many sank under the horrors of their situation: many were rendered desperate. They eluded the vigilance or corrupted the fidelity of the watchmen, and by their escape, instead of avoiding, served only to disseminate the contagion. 3d. Provision was also made for the speedy interment of the dead. In the daytime, officers were always on the watch to withdraw from public view the bodies of those who expired in the streets; during the night, the tinkling of a bell, accompanied with the glare of links, announced the approach of the pest-cart, making its round to receive the victims of the last twenty-four hours. No coffins were prepared; no funeral service was read; no mourners were permitted to follow the remains of their relatives or friends. The cart proceeded to the nearest cemetery, and shot its burthen into the common grave, a deep and spacious pit, capable of holding some scores of bodies, and dug in the churchyard, or, when the churchyard was full, in the outskirts of the parish. Of the hardened and brutal conduct of the men to whom this duty was committed, men taken from the refuse of society, and lost to all sense of morality or decency, instances were related to which it would be difficult to find a parallel in the annals of human depravity.

The disease generally manifested itself by the usual febrile symptoms of shivering, nausea, headache, and delirium. In some these affections were so mild as to be mistaken for a slight and transient indisposition. The

victim saw not, or would not see, the insidious approach of his foe : he applied to his usual avocations, till a sudden faintness came on, the maculæ, the fatal "token," appeared on his breast ; and within an hour life was extinct. But in most cases the pain and the delirium left no room for doubt. On the third or fourth day buboes or carbuncles arose : if these could be made to suppurate, recovery might be anticipated ; if they resisted the efforts of nature and the skill of the physician, death was inevitable. The sufferings of the patients often threw them into paroxysms of phrensy. They burst the bands by which they were confined to their beds ; they precipitated themselves from the windows ; they ran naked into the streets, and plunged into the river.

Men of the strongest minds were lost in amazement, when they contemplated this scene of woe and desolation : the weak and the credulous became the dupes of their own fears and imaginations. Tales the most improbable and predictions the most terrific were circulated ; numbers assembled at different cemeteries to behold the ghosts of the dead walk round the pits in which their bodies had been deposited ; and crowds believed that they saw in the heavens a sword of flame stretching from Westminster to the Tower. To add to their terrors came the fanatics, who felt themselves inspired to act the part of prophets. One of these in a state of nudity walked through the city, bearing on his head a pan of burning coals, and denouncing the judgments of God on its sinful inhabitants ; another, assuming the character of Jonah, proclaimed aloud as he passed, " Yet forty days and London shall be destroyed ;" and a third might be met, sometimes by day, sometimes by night, advancing with a hurried step, and exclaiming, with

a deep sepulchral voice, "Oh the great and dreadful God!"

During the months of July and August, the weather was sultry, the heat more and more oppressive. The eastern parishes, which at first had been spared, became the chief seat of the pestilence; and the more substantial citizens, whom it had hitherto respected, suffered in common with their less opulent neighbours. In many places the regulations of the magistrates could no longer be enforced. The nights did not suffice for the burial of the dead, who were now borne in coffins to their graves at all hours of the day; and it was inhuman to shut up the dwellings of the infected poor, whose families must have perished through want had they not been permitted to go and seek relief. London presented a wide and heart-rending scene of misery and desolation. Rows of houses stood tenantless and open to the winds; others in almost equal numbers exhibited the red cross flaming on the doors. The chief thoroughfares, so lately trodden by the feet of thousands, were overgrown with grass. The few individuals who ventured abroad walked in the middle, and when they met, declined on opposite sides to avoid the contact of each other. But if the solitude and stillness of the streets impressed the mind with awe, there was something yet more appalling in the sounds which occasionally burst upon the ear. At one moment were heard the ravings of delirium or the wail of woe from the infected dwelling; at another, the merry song or the loud and careless laugh issuing from the wassailers at the tavern, or the inmates of the brothel. Men became so familiarised with the form, that they steeled their feelings against the terrors of death: they waited each for his turn with the resignation of the christian

or the indifference of the stoic. Some devoted themselves to exercises of piety ; others sought relief in the riot of dissipation and the recklessness of despair.

September came ; the heat of the atmosphere began to abate ; but, contrary to expectation, the mortality increased. Formerly a hope of recovery might be indulged ; now infection was the certain harbinger of death, which followed generally in the course of three days, often within the space of twenty-four hours. The privy council ordered an experiment to be tried, which was grounded on the practice of former times. To dissipate the pestilential miasma, fires of sea coal, in the proportion of one fire to every twelve houses, were, on September 5th, kindled in every street, court, and alley, of London and Westminster. They were kept burning three days and nights, and were at last extinguished by a heavy and continuous fall of rain. The next bill exhibited a considerable reduction in the amount of deaths ; and the survivors congratulated each other on the cheering prospect. But the cup was soon dashed from their lips ; and in the following week more than ten thousand victims, a number hitherto unknown, sank under the augmented violence of the disease. Yet even now, when hope had yielded to despair, their deliverance was at hand. The high winds that usually accompany the autumnal equinox cooled and purified the air ; the fever, though equally contagious, assumed a less malignant form, and its ravages were necessarily more confined, from the diminution of the population on which it had hitherto fed. The weekly burials successively decreased, from thousands to hundreds ; and in the beginning of December, seventy-three parishes were pronounced clear of the disease. The intelligence was hailed with joy by the emigrants, who

returned in crowds to take possession of their homes and resume their usual occupations. In February 1661, the court was once more fixed at Whitehall, and the nobility and gentry followed the footsteps of the sovereign. Though more than one hundred thousand individuals are said to have perished, yet in a short time the chasm in the population was no longer discernible. The plague continued indeed to linger in particular spots, but its terrors were forgotten or despised ; and the streets so recently abandoned by the inhabitants were again thronged with multitudes in the eager pursuit of profit, or pleasure, or crime.

LESSON 10.—*William Penn's Treaty with the Indians.*

The country assigned to him by the royal charter was yet full of its original inhabitants ; and the principles of William Penn did not allow him to look upon that gift as a warrant to dispossess the first proprietors of the land. He had accordingly appointed his commissioners the preceding year, to treat with them for the fair purchase of a part of their lands, and for their joint possession of the remainder ; and the terms of the settlement being now nearly agreed upon, he proceeded, very soon after his arrival, to conclude the settlement, and solemnly to pledge his faith, and to ratify and confirm the treaty, in sight of both the Indians and planters. For this purpose a grand convocation of the tribes had been appointed near the spot where Philadelphia now stands ; and it was agreed that he and the presiding Sachems should meet and exchange faith, under the spreading branches of a prodigious elm tree that grew on the bank of the river. On the day appointed, accordingly, an innumerable multitude of the Indians assembled in that neigh-

bourhood, and were seen, with their dark visages and brandished arms, moving in vast swarms in the depth of the woods which then overshadowed the whole of that now cultivated region. On the other hand William Penn, with a moderate attendance of friends, advanced to meet them. He came of course unarmed, in his usual plain dress, without banners, or mace, or guard, or carriages; and only distinguished from his companions by wearing a blue sash of silk network (which it seems is still preserved by Mr. Kett of Secting-hall near Norwich), and by having in his hand a roll of parchment, on which was engrossed the confirmation of the treaty of purchase and amity. As soon as he drew near the spot, where the Sachems were assembled, the whole multitude of Indians threw down their weapons, and seated themselves on the ground in groups, each under his own chieftain; and the presiding chief intimated to William Penn that the nations were ready to hear him.

Having been thus called upon, he began:—"The Great Spirit," he said, "who made him and them, who ruled the heaven and the earth, and who knew the innermost thoughts of man, knew that he and his friends had a hearty desire to live in peace and friendship with them, and to serve them to the utmost of their power. It was not their custom to use hostile weapons against their fellow creatures, for which reason they had come unarmed. Their object was not to do injury, and thus provoke the Great Spirit, but to do good. They were then met on the broad pathway of good faith and good will, so that no advantage was to be taken on either side, but all was to be openness, brotherhood, and love." After these and other words he unrolled the parchment, and by means of the same interpreter conveyed to them, article by

article, the conditions of the purchase, and the words of the compact then made for their eternal union. Among other things they were not to be molested in their lawful pursuits, even in the territory they had alienated, for it was to be common to them and the English. They were to have the same liberty to do all things therein relating to the improvement of their grounds, and providing sustenance for their families, which the English had. If any disputes should arise between the two, they should be settled by twelve persons, half of whom should be English and half Indians. He then paid them for the land, and made them many presents besides from the merchandize which had been spread before them. Having done this, he laid the roll of parchment on the ground, observing again that the ground should be common to both people. He then added, that he would not do as the Marylanders did, that is, call them children or brothers only; for often parents were apt to whip their children too severely, and brothers sometimes would differ; neither would he compare the friendship between him and them to a chain, for the rain might sometimes rust it, or a tree might fall and break it; but he should consider them as the same flesh and blood with the christians, and the same as if one man's body were to be divided into two parts. He then took up the parchment, and presented it to the Sachem who wore the horn in the chaplet, and desired him and the other Sachems to preserve it carefully for three generations, that their children might know what had passed between them, just as if he himself had remained with them to repeat it.

The Indians in return made a long and stately harangue, of which however no more seems to have been

remembered, but that “ They pledged themselves to live in love with William Penn and his children, as long as the sun and moon should endure.” Thus ended this famous treaty, of which Voltaire has remarked, with so much truth and severity, “ that it was the only one ever concluded between savages and christians that was not ratified by an oath ; and the only one that never was broken !”

Such indeed was the spirit in which the negotiation was entered into, and the corresponding settlement conducted, that, for the space of more than seventy years, and so long indeed as the quakers retained the chief power in the government, the peace and amity, which had been thus solemnly promised and concluded, never was violated ; and a large and most striking though solitary example afforded, of the facility with which they who are really sincere and friendly in their own views, may live in harmony even with those who are supposed to be peculiarly fierce and faithless.

LESSON 11.—*The Crusades.*

The crusades have engaged the curiosity of man, as the most signal and most durable monument of human folly that has yet appeared in any age or nation. Peter, commonly called the Hermit, a native of Amiens in Picardy, had made the pilgrimage to Jerusalem. Being deeply affected with the dangers to which that act of piety now exposed the pilgrims, as well as with the instances of oppression under which the eastern christians laboured, he entertained the bold, and in all appearance impracticable project, of leading into Asia, from the farthest extremity of the west, armies sufficient to subdue those patient and warlike nations which now

held the holy city in subjection. He proposed his views to Martin II., who filled the papal chair, and who, though sensible of the advantages which the head of the christian religion must reap from a religious war, and though he esteemed the blind zeal of Peter a proper means for effecting the purpose, resolved not to interpose his authority till he saw a greater probability of success. He summoned a council at Placentia, which consisted of four thousand ecclesiastics and thirty thousand seculars, and which was so numerous that no hall could contain the multitude, so that it was necessary to hold the assembly in a plain. The harangues of the pope, and of Peter himself, representing the dismal situation of their brethren in the east, and the indignity suffered by the christian name in allowing the holy city to remain in the hands of infidels, here found the minds of men so well prepared, that the whole multitude suddenly and violently declared for war, and solemnly devoted themselves to perform this service, so meritorious as they believed it, to God and religion.

But though Italy seemed thus to have zealously embraced the enterprise, Martin knew that, in order to ensure success, it was necessary to enlist the greater and more warlike nations in the same engagement ; and having previously exhorted Peter to visit the chief cities and sovereigns of Christendom, he summoned another council at Clermont in Auvergne. The fame of this great and pious design being now universally diffused, procured the attendance of the greatest prelates, nobles, and princes : and when the pope and the hermit renewed their pathetic exhortations, the whole assembly, as if impelled by an immediate inspiration, not moved by their preceding impressions, exclaimed with one voice, "It is the will

of God ! It is the will of God !” words deemed so memorable, and so much the result of a divine influence, that they were employed as the signal of rendezvous and battle in all the future exploits of those adventurers. Men of all ranks flew to arms with the utmost ardour, and an exterior symbol too, a circumstance of chief moment, was here chosen by the devoted combatant. The sign of the cross, which had been hitherto so much revered amongst christians, and which the more it was an object of reproach among the pagan world was the more passionately cherished by them, became the badge of union, and was affixed to their right shoulder by all who enlisted themselves in this sacred warfare.

Europe was at this time (A. D. 1096) sunk into profound ignorance and superstition. The ecclesiastics had acquired the greatest ascendancy over the human mind. The people, who, being little restrained by honour and less by law, abandoned themselves to the worst crimes and disorders, knew of no other expiation than the observances imposed on them by their spiritual pastors; and it was easy to represent the holy war as an equivalent for all penances, and an atonement for every violation of justice and humanity. But amidst the abject superstition which now prevailed, the military spirit also had universally diffused itself; and though not supported by art or discipline, was become the general passion of the nations governed by feudal law. All the great lords possessed the right of peace and war : they were engaged in perpetual hostilities against each other : the open country was become a scene of outrage and disorder ; the cities, still mean and poor, were neither guarded by walls nor protected by privileges, and were exposed to every insult. Individuals were obliged to depend

for safety on their own force or their private alliances ; and valour was the only excellence which was held in esteem, or gave one man the pre-eminence above another. When all the particular superstitions therefore were here united into one great object, the ardour for military enterprises took the same direction. Europe, impelled by its two ruling passions, was loosened, as it were, from its foundations, and seemed to precipitate itself in one united body upon the East.

All orders of men, deeming the crusades the only road to heaven, enlisted themselves under those sacred banners, and were impatient to open the way with their swords to the holy city. Nobles, artisans, peasants, even priests, enrolled their names ; and to decline this meritorious service was branded with the reproach of impiety, or, what perhaps was esteemed still more disgraceful, of cowardice and pusillanimity. The infirm and aged contributed to the expedition by presents and money ; and many of them, not satisfied with the merit of this atonement, attended it in person, and were determined if possible to breathe their last in sight of that city where their Saviour had died for them. Women themselves, concealing their sex under the disguise of armour, attended the camp ; the greatest criminals were forward in a service which they regarded as a propitiation for all crimes ; and the most enormous disorders were, during the course of those expeditions, committed by men inured to wickedness, encouraged by example, and impelled by necessity. The multitude of the adventurers soon became so great, that their most sagacious leaders became apprehensive lest the greatness itself of the armament should disappoint its purpose ; and they permitted an undisciplined multitude, computed at three

hundred thousand men, to go before them, under the command of Peter the Hermit and Walter the Moneyless. These men took the road towards Constantinople, through Hungary and Bulgaria; and trusting that Heaven, by supernatural assistance, would supply all their necessities, they made no provision for subsistence on their march. They soon found themselves obliged to maintain by plunder what they had vainly expected from miracle; and the enraged inhabitants of the countries through which they passed, gathering together in arms, attacked the disorderly multitude, and put them to slaughter without resistance. The more disciplined armies followed after, and passing the straits of Constantinople, were mustered in the plains of Asia, and amounted in the whole to the number of seven hundred thousand combatants.

LESSON 12.—*Washington's Retirement.*

The hour now approached in which it became necessary for the American chief to take leave of his officers, who had been endeared to him by a long series of common sufferings and dangers. This was done in a solemn manner. The officers having previously assembled for the purpose, General Washington joined them, and, calling for a glass of wine, thus addressed them:—"With a heart full of love and gratitude, I now take leave of you. I most devoutly wish that your latter days may be as prosperous and happy as your former ones have been glorious and honourable." Having drunk he added, "I cannot come to each of you to take my leave, but shall be obliged to you if each of you will come and take me by the hand." General Knox, being next, turned to him. Incapable of utterance, Washington grasped his

hand and embraced him. The officers came up successively, and he took an affectionate leave of each of them. Not a word was articulated on either side. A majestic silence prevailed. The tear of sensibility glistened in every eye. The tenderness of the scene exceeded all description. When the last of the officers had taken his leave, Washington left the room, and passed through the corps of light infantry to the place of embarkation. The officers followed in a solemn mute procession, with dejected countenances. On his entering the barge to cross the North river, he turned towards the companions of his glory, and, by waving his hat, bade them a silent adieu. Some of them answered this last signal of respect and affection with tears; and all of them gazed upon the barge which conveyed him from their sight, till they could no longer distinguish in it the person of their beloved commander-in-chief.

The army being disbanded, Washington proceeded to Annapolis, then the seat of congress, to resign his commission. On his way thither, he of his own accord delivered to the comptroller of accounts in Philadelphia an account of the expenditure of all the public money he had ever received. This was in his own handwriting, and every entry was made in a very particular manner. Vouchers were produced for every item, except for secret intelligence and service, which amounted to no more than 1982 pounds 10 shillings sterling. The whole which in the course of eight years of war had passed through his hands, amounted only to 14,479 pounds, 18 shillings, 9 pence sterling. Nothing was charged or retained for personal services; and actual disbursements had been managed with such economy and fidelity, that they were all covered by the above moderate sum.

After accounting for all his expenditures of public money, (secret service money, for obvious reasons, excepted,) with all the exactness which established forms required from the inferior officers of his army, he hastened to resign into the hands of the fathers of his country the powers with which they had invested him. This was done in a public audience. Congress received him as the founder and guardian of the republic. While he appeared before them, they silently retraced the scenes of danger and distress through which they had passed together. They recalled to mind the blessings of freedom and peace purchased by his arm. They gazed with wonder on their fellow citizen, who appeared more great and worthy of esteem in resigning his power, than he had done in gloriously using it. Every heart was big with emotion. Tears of admiration and gratitude burst from every eye. The general sympathy was felt by the resigning hero, and wet his cheek with a manly tear. After a decent pause, he addressed Thomas Mifflin, the president of congress, in the following words :

“ The great events on which my resignation depended having at length taken place, I have now the honour of offering my sincere congratulations to congress, and of presenting myself before them, to surrender into their hands the trust committed to me, and to claim the indulgence of retiring from the service of my country.

“ Happy in the confirmation of our independence and sovereignty, and pleased with the opportunity afforded the United States of becoming a respectable nation, I resign with satisfaction the appointment I accepted with diffidence ; a diffidence in my abilities to accomplish so arduous a task, which however was superseded by a confidence in the rectitude of our cause, the support of

the supreme power of the union, and the patronage of Heaven.

“The successful termination of the war has verified the most sanguine expectations ; and my gratitude for the interposition of Providence, and for the assistance I have received from my countrymen, increases with every review of the momentous contest.

“While I repeat my obligations to the army in general, I should do injustice to my own feelings not to acknowledge in this place the peculiar services and distinguished merits of the persons who have been attached to my person during the war. It was impossible that the choice of confidential officers to compose my family should have been more fortunate. Permit me, sir, to recommend, in particular, those who have continued in the service to the present moment, as worthy of the favourable notice and patronage of congress.

“I consider it as an indispensable duty to close this last solemn act of my official life, by commending the interests of our dearest country to the protection of Almighty God, and those who have the superintendence of them to his holy keeping.

“Having now finished the work assigned me, I retire from the great theatre of action ; and, bidding an affectionate farewell to this august body, under whose orders I have long acted, I here offer my commission, and take my leave of all the employments of public life.”

This address being ended, General Washington advanced, and delivered his commission into the hands of the president of congress, who replied as follows :

“The United States in congress assembled receive, with emotions too affecting for utterance, the solemn resignation of the authorities under which you have led

their troops with success through a perilous and doubtful war.

“Called upon by your country to defend its invaded rights, you accepted the sacred charge before it had formed alliances, and whilst it was without friends or a government to support you.

“You have conducted the great military contest with wisdom and fortitude, invariably regarding the rights of the civil power through all disasters and changes. You have, by the love and confidence of your fellow citizens, enabled them to display their martial genius, and transmit their fame to posterity : you have persevered, till these United States, aided by a magnanimous king and nation, have been enabled, under a just Providence, to close the war in safety, freedom, and independence : on which happy event we sincerely join you in congratulation.

“Having defended the standard of liberty in this new world, having taught a lesson useful to those who inflict and to those who feel oppression, you retire from the great theatre of action with the blessings of your fellow citizens : but the glory of your virtues will not terminate with your military command ; it will continue to animate remotest ages. We feel with you our obligations to the army in general, and will particularly charge ourselves with the interest of those confidential officers who have attended your person to this affecting moment.

“We join you in commending the interests of our dearest country to the protection of Almighty God, beseeching him to dispose the hearts and minds of its citizens to improve the opportunity afforded them of becoming a happy and respectable nation : and for you, we address to him our earnest prayers, that a life so

beloved may be fostered with all his care; that your days may be happy as they have been illustrious; and that he will finally give you that reward which this world cannot give."

The military services of General Washington, which ended with this interesting day, were as great as ever were rendered by any man to any nation. They were at the same time disinterested. How dearly would not a mercenary man have sold such toils, such dangers, and above all, such successes! What schemes of grandeur and of power would not an ambitious man have built upon the affections of the people and of the army! The gratitude of America was so lively, that anything asked by her resigning chief would have been readily granted. He asked nothing for himself, his family, or relations; but indirectly solicited favours for the confidential officers who were attached to his person. These were young gentlemen without fortune, who had served him in the capacity of aides-de-camp. To have omitted the opportunity which then offered of recommending them to their country's notice would have argued a degree of insensibility in the breast of their friend. The only privilege distinguishing him from other private citizens which the retiring Washington did or would receive from his grateful country, was a right of sending and receiving letters free of postage.

The American chief, having by his own voluntary act become one of the people, hastened with ineffable delight to his seat at Mount Vernon, on the banks of the Potomac. There, in a short time, the most successful general in the world became the most diligent farmer in Virginia.

To pass suddenly from the toils of the first commis-

sion in the United States to the care of a farm, to exchange the instruments of war for the implements of husbandry, and to become at once the patron and example of ingenious agriculture, would to most men have been a difficult task: to the elevated mind of Washington it was natural and delightful.

His own sensations after retiring from public business are thus expressed in his letters:—"I am just beginning to experience the ease and freedom from public cares which, however desirable, it takes some time to realize; for, strange as it may seem, it is nevertheless true, that it was not until lately I could get the better of my usual custom of ruminating, as soon as I awoke in the morning, on the business of the ensuing day; and of my surprise on finding, after revolving many things in my mind, that I was no longer a public man, or had anything to do with public transactions. I feel as I conceive a wearied traveller must feel, who, after treading many a painful step with a heavy burden on his shoulders, is eased of the latter, having reached the haven to which all the former were directed, and from his housetop is looking back, and tracing with an eager eye the meanders by which he escaped the quicksands, and mires which lay in his way, and into which none but the all-powerful Guide and Dispenser of human events could have prevented his falling.

"I have become a private citizen on the banks of the Potomac; and under the shadow of my own vine and my own fig-tree, free from the bustle of a camp and the busy scenes of public life, I am solacing myself with those tranquil enjoyments, of which the soldier, who is ever in pursuit of fame,—the statesman, whose watchful days and sleepless nights are spent in devising schemes

to promote the welfare of his own, perhaps the ruin of other countries, as if this globe were insufficient for us all,—and the courtier, who is always watching the countenance of his prince, in the hope of catching a gracious smile,—can have very little conception. I have not only retired from all public employments, but am retiring within myself, and shall be able to view the solitary walk, and tread the paths of private life, with heartfelt satisfaction. Envious of none, I am determined to be pleased with all; and this, my dear friend, being the order of my march, I will move gently down the stream of life, until I sleep with my fathers.”

CHAPTER V.

BIOGRAPHICAL PIECES.

LESSON 1.—*Galileo.*

It is from the accounts of Viviani and Gherardini that we principally draw the following particulars of Galileo's person and character. Signor Galileo was of a cheerful and pleasant countenance, especially in his old age; square built, and well proportioned in stature, and rather above the middle size. His complexion was fair and sanguine, his eyes brilliant, and his hair of a reddish cast. His constitution was naturally strong, but worn out by fatigue of mind and body, so as frequently to be reduced to a state of the utmost weakness. He was subject to attacks of hypochondria, and often molested by severe and dangerous illnesses, occasioned in great measure by his sleepless nights, the whole of which he frequently spent in astronomical observations. During upwards of

forty-eight years of his life he was tormented with acute rheumatic pains, suffering particularly on any change of weather. He found himself most free from these pains whilst residing in the country, of which consequently he became very fond : besides, he used to say that in the country he had greater freedom to read the book of nature, which lay there open before him. His library was very small, but well chosen, and open to the use of the friends whom he loved to see assembled round him, and whom he was accustomed to receive in the most hospitable manner. He ate sparingly himself ; but was particularly choice in the selection of his wines, which in the latter part of his life were regularly supplied out of the grand duke's cellars.

In his expenditure, Galileo observed a just mean between avarice and profusion ; he spared no cost necessary for the success of his many and various experiments, and spent large sums in charity and hospitality, and in assisting those in whom he discovered excellence in any art or profession ; many of whom he maintained in his own house. His temper was easily ruffled, but still more easily pacified. He seldom conversed on mathematical or philosophical topics, except among his intimate friends ; and when such subjects were abruptly brought before him, as was often the case by the numberless visitors he was in the habit of receiving, he showed great readiness in turning the conversation into more popular channels, in such manner however that he often contrived to introduce something to satisfy the curiosity of the inquirers. His memory was uncommonly tenacious, and stored with a vast variety of old songs and stories, which he was in the constant habit of quoting and alluding to. His favourite Italian authors

were Ariosto, Petrarca, and Berni, great part of whose poems he was able to repeat.

Although quite blind, and nearly deaf, the intellectual powers of Galileo remained to the end of his life ; but he occasionally felt that he was overworking himself, and used to complain to his friend Micanzio that he found his head too busy for his body. " I cannot keep my restless brain from grinding on, although with great loss of time ; for whatever idea comes into my head with respect to any novelty, drives out of it whatever I had been thinking of just before." He was busily engaged in considering the nature of the force of percussion, and Torricelli was employed in arranging his investigations for a continuation of the ' Dialogics on Motion,' when he was seized with an attack of fever and palpitation of the heart, which after an illness of two months put an end to his long, laborious, and useful life, on the 8th of January, 1642, just one year before his great successor Newton was born.

LESSON 2.—*Adam Smith.*

His learning was extensive and profound. His study had not been confined to the subjects which might appear to have occupied the whole labour of his life. The sciences of ethics and politics were not taken up by him as detached and abstract branches of philosophy ; they came presented to his mind as part of the greater science of human nature, to which he had always devoted himself, and in the contemplation of which he borrowed every aid which a careful observation of the various institutions which have existed among men, their history, their language, and the monuments of their arts and

letters, could afford him. But he loved literature, as he loved virtue, for its own sake, for its intrinsic beauty and worth. In its best records, those which exhibit the actions and display the passions and sentiments of men, whether in philosophy, where they are traced to their causes ; in history, in poetry and oratory, where under different forms they are beheld in their operation ; amid that exhaustless variety of circumstances and vicissitude of fortune under which man has been seen at once an agent and a victim ; he found the everlasting materials for his speculations, the real and only data of all moral science. He did not affect to despise, economist as he was, the imperishable productions of human wit and genius, the poetry of Homer or of Milton, the eloquence of Demosthenes or of Fox, because he could find in their works no argument for the theory of rent or the doctrine of population. Nor was he pleased to think it the part of a philosopher or a philanthropist, to sneer at the domestic affections and the social virtues, in the most comprehensive investigations which he instituted, and which had for their object the common benefit of mankind.

In his last hours he found delight in the tragedies of Euripides and Racine ; and the drama, and the principles of the dramatic art and of poetry in general, formed a frequent and favourite topic of his conversation. He was a great advocate for rhyme, a more unqualified one even than Dr. Johnson, for he was accustomed to contend for the propriety of it, as well on the stage as in all other departments of poetry.

As he loved to read it, he was accustomed to quote poetry ; and the number of beautiful passages which he had treasured in his memory, and was in the habit of

introducing in conversation, was remarkable in a man distinguished by so many higher acquisitions.

His peculiar taste is best exemplified in the style of his writings, which possess, even in that respect alone, merit of a very high order. If he has not (and who has?) the grace, the "careless, inimitable beauties" of Mr. Hume, it was owing in some measure to his not having mixed in such varied society; a circumstance which, acting upon the refined taste of the latter, lent to his compositions that inexpressible charm, which Gibbon may be supposed to have felt when he describes himself, in his ambition to emulate him, as "closing the volume with a mixed sensation of delight and despair."

The great aim of Dr. Smith as a writer, and his great merit, is a marvellous perspicuity in the exposition of his ideas. Often diffuse, but never prolix; sometimes condensed, but never entangled in his expression; he unfolds the process of his reasonings so amply, that he leaves nothing to be supplied by his reader but a careful attention to his matter. Mr. Fox however is reported to have said of him, perhaps hastily, that he was unnecessarily diffuse, and fond of deductions where there was nothing to deduce. Mr. Stewart, with greater reserve, has ventured to hint a criticism nearly similar, and has ascribed this quality in his compositions to his early fondness for the study of the Greek geometry.

His greatest defect in the "Wealth of Nations," along with some faults in the arrangement of his subject, arises from his frequent digressions; his long dissertations upon some incidental questions, which frequently encumber the text, and intercept that complete and unbroken view of the subject as a whole, which a didactic author, who desires to interest and inform his reader,

should always endeavour to preserve, from the first simple proposition with which he sets out, to the final development of his system in all its parts. This defect arose partly from a peculiarity in his judgment, which led him to reject the use of marginal annotations, so useful in treating of many subjects, and certainly it would seem not the least so in many which Dr. Smith undertook to discuss in his great work. It is curious however, that in the "Wealth of Nations" there are, we believe, but three or four notes, of four or five lines each, in the whole work, and these containing little more than references to authorities; whilst in the "Theory of Moral Sentiments," there occurs but one of considerable length, and of importance more than equal to its length, in which it is remarkable that he has embodied a piece of reasoning, having essential reference to his system, of which it may be said indeed to furnish one of the strongest supports and the clearest illustrations to be found perhaps in the whole work.

There is no doubt that he bestowed great care upon the style and composition of his works. And after all his practice as a writer, he is said never to have acquired that facility which is often attained by it, but to have written as slowly and with as much labour at last as he had ever done. This however was the effect, in some measure, of the nature of his speculations, and the general character and conduct of his understanding. In all his works, though we find passages of exceeding eloquence, force, and beauty, he is most distinguished for being a deliberate reasoner and a candid and cautious thinker. It was usual with him, when employed in composition, not to write with his own hand, but to walk about his room dictating to an amanuensis. He

had, collected in the course of his life a very valuable library, which he bequeathed to his cousin, Mr. David Douglas. As he was a lover of books, he was more attentive to their condition and the outward fashion of them than is usual with scholars in general. When Mr. Smellie once called upon him, and was admiring a splendid copy of some classic author, and the general elegance of his shelves, "You see, sir," said Smith, "if in nothing else, I am a beau at least in my books."

Besides the two great works of which we have spoken, and on which the fame of Dr. Smith will for ever rest, we must not omit to mention the very original and ingenious dissertation on the formation of languages, which was appended to the early editions of the "Moral Sentiments," and still continues to be published along with that work ; and the few masterly but unfinished sketches which were published shortly after his death. The tract on languages is a piece of extensive learning and profound observation ; but though Mr. Stewart has bestowed high praise upon it, it seems hardly to have attracted the notice it deserves. The longest and most important of the posthumous essays is entitled "A History of Astronomy," in which the author proposes to illustrate the principles which suggest and direct philosophical inquirers by an account of the origin and progress of that interesting science. The same train of thought was pursued in two shorter and more imperfect essays on the "History of the ancient Physics," and that of the ancient "Logic and Metaphysics." Along with these is a disquisition of very great beauty, entitled, with his accustomed amplitude of language, "On the Nature of that Imitation which takes place in what are called the Imitative Arts ;" and another on the "External Senses ;" all abounding

in great originality of thought, exquisite illustration, and expression the most expanded and luminous.

In the "Sketches of the History of Philosophy," we find the same turn and tendency of mind which he has displayed in his greater works, a disposition which delighted to ascribe the first exercise of the imagination and the intellect, not to any view of profit or advantage in its results, but to a natural desire to fill up the void which was felt by the mind, from its inability to comprehend and connect together the various, and as it would seem the disjointed appearances which present themselves to its contemplation in the scenes and operations of nature. "Philosophy," says Dr. Smith, "is nothing but the science of the connecting principle of nature." It is an art addressed to the imagination, which seeks to adapt and reconcile to that faculty some theory, more or less satisfactory, of the phenomena, which at first view are void of order and connexion, and of meaning. The superiority of the Newtonian philosophy, he maintains, consists only in this, that it is the most pleasing solution of the great problem of nature which has yet been given; that it connects more easily and more simply the appearances of the heavens in the fancy: not that it is by any means to be regarded as unfolding the actual chains which nature makes use of to bind together her several operations.

In the few observations which have been made upon the writings of this illustrious man, as in the short extracts introduced from them it has been less our object, as will be seen, to dwell upon their merits with reference to any *system*, either of morals or economy, or to the soundness or fallacy of any particular doctrine, than to point out the admirable spirit which animates every part

of that system ; and those principles to which he always appeals, as the legitimate sources whence alone we can draw the materials of all moral and political institutes. To have done more than this, to have given even a very brief abstract of his system in either of his two great works, would have far exceeded the limits of the present memoir ; would require, and might well deserve, a separate treatise.

What has been attempted, however imperfectly, may not be altogether without its use, at least until propositions in the moral as in the mathematical sciences shall admit of demonstration. When that shall be the case, and the results of our reasonings can be submitted to so decisive a test, the source whence we derive them, and the mode in which they are conducted, may be alike indifferent, and cannot assuredly affect in the slightest degree the truths demonstrated. Till then, however, it must be considered as no unimportant part of that species of philosophy which, in the expressive language of Lord Bacon, comes home to men's business and bosoms, to temper its doctrines by moderation and modesty ; to engage the sympathies on our side of those we undertake to teach, and not to repel them ; to endeavour to show, if we can, that the doctrines we inculcate may be traced to a higher wisdom than that of man, by being in conformity with the rules by which nature seems to work, and in furtherance of principles which she has evidently implanted for the accomplishment of her own great ends.

No philosopher has so constantly borne in mind as Dr. Smith, that in the moral, as in the physical, constitution and frame of man, nature has made certain provisions for his attainment to virtue and to happiness,

which the ignorant may overlook, and the arrogant may disregard, but with which the wise will only study to co-operate. And all the precepts we can put forth will derive their best sanction, and afford the strongest presumption in their favour, by their being shown to be in unison with those simple instincts of our nature by which alone, as individuals, we are first taught to apprehend a distinction betwixt good and evil, and which, in the obvious arrangements they suggest for the social union, were equally intended by our great Creator as lights to the economist legislator for the framing of those laws and institutions which take place in the wider and more complicated associations of men. It was in this excellent and truly enlightened spirit that Smith, by applying the experimental method of reasoning to moral subjects, attained the vantage ground of that higher philosophy of which it is the glory of Bacon to have pointed out the road ; by which Newton ascended to the discovery of the sublimest truths in physics ; and by the careful cultivation of which alone, if ever, it may be hoped that the moral and political sciences will be placed on a foundation equally enduring, and when knowledge in them will more surely become power to man, as their reference to his happiness and advancement is more obvious and immediate.

LESSON 3.—*Lord Burleigh.* •

The mind of Burleigh appears to have been strongly tinctured with piety. Placed amidst dangers which his utmost vigilance could not always avoid, and from which he often escaped by unexpected accidents, his views were naturally extended to that Power on whose will depended the duration of his life. His faith had been

endeared to him by persecution; his piety was exalted by the sacrifice of his interest to religion. Regular in his attendance on public worship, and in the performance of his private devotions, he strove, both by example and influence, to inspire his family and connections with religious sentiments. During the greatest pressure of business it was his custom, morning and evening, to attend prayers at the queen's chapel. When his increasing infirmities rendered him no longer able to go abroad, he caused a cushion to be laid by his bedside, and on his knees performed his devotions at the same regular hours. Unable at length to kneel, or to endure the fatigue of reading, he caused the prayers to be read aloud to him as he lay on his bed. "I will trust," he said, "no man, if he be not of sound religion; for he that is false to God can never be true to man." The strictness of his morals was in correspondence with his piety, and both had a powerful effect in confirming his fortitude in times of peril. At the awful period when Philip was preparing his armada, and when the utter destruction of the English government was confidently expected abroad, and greatly dreaded at home, Burleigh was uniformly collected and resolute; and when the mighty preparations of the Spaniards were spoken of in his presence with apprehension, he replied with firmness, "They shall do no more than God will suffer them."

In his intercourse with his family and dependents this grave statesman was kind and condescending. In his leisure moments he delighted in sporting with his children, forbearing however such indications of intemperate fondness as might have rendered them regardless of his authority, and ready to give the rein to their caprices. In his old age no scene so much delighted

him as to have his children, grandchildren, and great-grandchildren, collected round his table, and testifying their happiness by their good humour and cheerfulness. While his eldest son passed into the rank of hereditary nobility, it was to his second son, Robert, that Burleigh turned an anxious eye as the heir of his talents and influence. Nor were his pains fruitlessly bestowed. Robert displayed abilities worthy of his father; and after rising, during his lifetime, to considerable trusts and employments in the state, succeeded him, under James I., as prime minister, under the title of Earl of Salisbury. The care with which Burleigh watched over the interests of his son appears from a series of prudential advices arranged in ten divisions, which he drew up for his use.

For the improvement of his children, as well as for his own domestic happiness, Burleigh was chiefly indebted to his wife, the daughter of Anthony Cook, a lady highly distinguished for her mental accomplishments. The plan of female education which the example of Sir Thomas More had rendered popular, continued to be pursued among the superior classes of the community. The learned languages, which in the earlier part of Elizabeth's reign still contained everything elegant in literature, formed an indispensable branch of a fashionable education; and many young ladies of rank could not only translate the authors of Greece and Rome, but even compose in Greek and Latin with considerable elegance. Sir Anthony Cook, a man eminent for his literary acquirements, and on that account appointed tutor to Edward VI. bestowed the most careful education on his five daughters; and all of them rewarded his exertions by becoming not only proficient in literature, but distinguished for their excellent demeanour as mothers of

families. Lady Burleigh was adorned with every quality which could excite love and esteem ; and many instances are recorded of her piety and beneficence. She had accompanied her husband through all the vicissitudes of his fortunes ; and an affectionate union of forty-three years rendered the loss of her the severest calamity of his life. The despondency caused to him by this irreparable calamity produced a desire to renounce public business, so irksome in that state of his feelings, and to devote the remainder of his life to retirement and meditation. But Elizabeth was too sensible of the vast importance of his counsels. She peremptorily rejected the resignation which he tendered, yet softened her refusal with those arts which she knew so well to employ.

But though Burleigh continued to apply himself with undiminished vigour to public business, his happiness had sustained a loss which nothing could repair. In his wife he had been deprived of a companion which society and long habit had rendered essential to his enjoyment ; while the increasing severity of the gout, with other infirmities of age, aggravated the distress of his mind by the pains of his body. By no trait had he hitherto been more remarkable than by the unruffled calmness of his temper. The serenity of his countenance seemed to indicate a tranquillity so confirmed as to be incapable of interruption ; and an eye-witness informs us that, for thirty years together, he was seldom seen moved with joy in prosperity, or with sorrow in adversity. But in the latter years of his life this consummate self-command began to forsake him. Business became more irksome as strength decreased, and the success with which his antagonists thwarted his pacific counsels gave him infinite pain, as they seemed likely to undo all the

national advantages which it had been the labour of his life to procure. His temper now became unfortunately so altered, that he who had been so eminent for coolness, sometimes gave way to passion, in opposition to every dictate of discretion. In a conversation with M. Fouquerolles, an envoy from Henry IV., something which occurred so transported him with passion, that he broke out into the most vehement invectives against that monarch. His intercourse with his servants, which had been uniformly placid and cheerful, was now frequently interrupted by sudden bursts of peevishness: but on such occasions he immediately recalled himself; appeared sensible of the injustice of injuring those who could not retaliate; and endeavoured, by assuming a peculiar complacency in his words and looks, or by studiously devising some acts of kindness, to make reparation for the pain which he had unadvisedly caused.

Various indications of declining health now began to assail the aged statesman. Still he continued assiduous at his post, and laboured to rescue his countrymen from those delusive hopes of military glory and plunder, in pursuit of which they threatened to exhaust all their solid resources. The last public measure which he accomplished was the conclusion of an advantageous treaty with Holland: and he closed his long and useful labours in the council with an earnest but ineffectual effort to persuade them to negotiate with Spain. He died on the 4th of August, 1598, in the seventy-eighth year of his age, having held the station of prime minister of England for the long period of forty years, and assisted in the conduct of public affairs for upwards of half a century. His deathbed was surrounded by friends whom he esteemed, by children for whose future welfare

he had provided, by servants devoted to him from a long interchange of good offices ; and he expired with the utmost serenity and composure.

The death of Burleigh was a cause of general sorrow. Elizabeth deeply lamented the loss of a minister in whose exertions she had found security and success during her whole reign : and the clouds which overhung the close of her career must often have renewed her regret for the want of her wise and faithful counsellor. A minister who opposes the multitude in the pursuit of an object on which their heated imaginations have fixed, is sure at the moment to be exposed to reproach. Such was the situation of Burleigh at the period of his death. In the face of popular clamour he continued to deprecate a war which was no longer necessary for the public safety, and which wasted the wealth of the nation to gratify the pride or avarice of individuals. The Earl of Essex, who still stood at the head of his antagonists, was the idol of the people ; and they fondly contrasted the high spirit, the love of glory, the courageous sentiments of this young nobleman with what they termed the cold, cautious, illiberal policy of the aged Burleigh. Yet his death caused more regret than satisfaction, even among the unthinking multitude. They felt themselves deprived of a guardian, under whose vigilant protection they had long reposed and prospered ; and there remained no statesman of equal experience to guide their affairs, at a time when the decay of Elizabeth and a disputed succession threatened the nation with many calamities. The lapse of time has long since removed those circumstances which elevated the hopes and inflamed the passions of his contemporaries ; the merits of Burleigh have been more justly estimated ; and pos-

terity seems to concur in recognising him as the wisest minister of England.

LESSON 4.—*Sir Thomas More.*

Aristotle and Bacon, the greatest philosophers of the ancient and modern world, agree in representing poetry as being of a more excellent nature than history. Agreeably to the predominance of more understanding in Aristotle's mind, he alleges as his cause of preference that poetry regards general truth, or conformity to universal nature; while history is conversant with only a confined and accidental truth, dependent on time, place, and circumstances. The ground assigned by Bacon is such as naturally issued from that fusion of imagination with reason which constitutes his philosophical genius. Poetry is ranked more highly by him, because the poet presents us with a pure excellence and an unmingled grandeur, not to be found in the coarse realities of life or of history; but which the mind of man, although not destined to reach, is framed to contemplate with delight.

The general difference between biography and history is obvious. There have been many men in every age, whose lives are full of interest and instruction, but who, having never taken a part in public affairs, are altogether excluded from the province of the historian. There have been also probably equal numbers, who have influenced the fortune of nations in peace or in war, of the peculiarities of whose character we have no information; and who, for the purpose of the biographer, may be said to have no private life.

These are extreme cases. But there are other men, whose manners and acts are equally well known, whose individual lives are deeply interesting, whose character-

istic qualities are peculiarly striking, who have taken an important share in events connected with the most extraordinary revolutions of human affairs, and whose biography becomes more difficult from that combination and intermixture of private with public occurrences, which render it instructive and interesting. The variety and splendour of the lives of such men render it often difficult to distinguish the portion of them which ought to be admitted into history, from that which should be reserved for biography. Generally speaking, these two parts are so distinct and unlike, that they cannot be confounded without much injury to both ; either when the biographer hides the portrait of the individual by a crowded and confined picture of events, or when the historian allows unconnected narratives of the lives of men to break the thread of history. The historian contemplates only the surface of human nature, adorned and disguised when the actors perform brilliant parts before a great audience, in the midst of so many dazzling circumstances, that it is hard to estimate their intrinsic worth ; and impossible, in an historical relation, to exhibit the secret springs of their conduct. The biographer endeavours to follow the hero and the statesman from the field, the council, or the senate, to his private dwelling, where, in the midst of domestic ease or of social pleasure, he throws aside the robe and the mask, becomes again a man instead of an actor, and, in spite of himself, often shows frailties and singularities which are visible in the countenance and voice, in the gesture and manner of every man when he is not acting a part. It is particularly difficult to observe the distinction in the case of Sir Thomas More, because he was so perfectly natural a man that he carried his

amiable peculiarities into the gravest deliberations of state and the most solemn acts of law. Perhaps nothing more can be universally laid down, than that the biographer ought never to introduce public events, except as far as they are absolutely necessary to the illustration of character ; and that the historian should rarely digress into biographical particulars, except as far as they contribute to the clearness of his narrative of political occurrences.

Of all men nearly perfect, Sir Thomas More had perhaps the clearest marks of individual character. His peculiarities, though distinguishing him from all others, were yet withheld from growing into moral faults. It is not enough to say of him that he was unaffected, that he was natural, that he was simple ; so the larger part of truly great men have been. But there is something homespun in More which is common to him with scarcely any other, and which gives to all his faculties and qualities the appearance of being the native growth of the soil. The homeliness of his pleasantry purifies it from show. He walks on the scaffold clad only in his household goodness. The unreserved benignity with which he ruled his patriarchal dwelling at Chelsea enabled him to look on the axe without being disturbed by feeling hatred for the tyrant. This quality bound together his genius and learning, his eloquence and fame, with his homely and daily duties, bestowing a genuineness on all his good qualities, a dignity on the most ordinary offices of life, and an accessible familiarity on the virtues of a hero and a martyr, which silences every suspicion that his excellencies were magnified.

He thus simply performed great acts, and uttered great thoughts, because they were familiar to his great

soul: The charm of this inborn and homebred character seems as if it would have been taken off by polish. It is this household character which relieves our notion of him from vagueness, and divests perfection of that generality and coldness to which the attempt to paint a perfect man is so liable.

It will naturally and very strongly excite the regret of the good in every age, that the life of this best of men should have been in the power of him who was rarely surpassed in wickedness. But the execrable Henry was the means of drawing forth the magnanimity, the fortitude, and the meekness of More. Had Henry been a just and merciful monarch, we should not have known the degree of excellence to which human nature is capable of ascending. Catholics ought to see in More that mildness and candour are the true ornaments of all modes of faith. Protestants ought to be taught humility and charity from this instance of the wisest and best of men falling into, what they deem, the most fatal errors. All men, in the fierce contests of contending factions, should from such an example learn the wisdom to fear, lest in their most hated antagonist they may strike down a Sir Thomas More; for assuredly virtue is not so narrow as to be confined to any party; and we have, in the case of More, a signal example that the nearest approach to perfect excellence does not exempt men from mistakes which we may justly deem mischievous. It is a pregnant proof that we should beware of hating men for their opinions, or of adopting their doctrines because we love and venerate their virtues.

LESSON 5.—*The Duke of Marlborough.*

It is admitted on all hands that to the care and diligence of tutors the Duke of Marlborough owed nothing. He entered upon public life at an age when it was next to impossible that he could have acquired more than the first rudiments of education ; and his studies were in consequence either totally neglected, or carried on without order, almost without an aim. But Marlborough had received from nature gifts infinitely superior, for the purposes of action, to any which mere learning can bestow. To an intuitive quickness, which enabled him to see into and understand the characters of others, he united an extraordinary share of circumspection in the development of his own ; a circumspection which was the more available as it lay hidden under the guise of perfect openness and candour. Frank in his general deportment, and apparently without the wish or the power to hold back from others the absolute confidence which they bestowed upon him, he nevertheless contrived to communicate to each only so much of information as the peculiar disposition of the party consulted seemed to warrant. Discretion therefore may be said to have formed one very prominent feature in his mental portrait ; that kind of discretion which, equally removed from timidity and rashness, directs a man as well when to exhibit reserve as when to display its opposite ; as well how to meet an exigency as to avoid it ; as well when to take the lead as to be guided by the advice of others, the occurrence of circumstances, or the movements of an adverse party. We do not pretend to affirm that Marlborough was never deceived, that he never committed himself with men who eventually betrayed him. This were to attribute to him such a degree of

foresight as belongs to no finite mind : but the narrative of his life forms one continued exemplification of prudence, to which there is not a parallel in history. Had he been able to controul the wayward temper of his wife, the close of his public career would have offered no contrast to its commencement. That, however, he found it impracticable to accomplish ; and hence a fabric of power, built up by the exercise of more than man's discretion, a woman's violence, the offspring of wounded vanity, threw to the ground.

Another important quality conspicuous in the character of this illustrious man was that power of calculation which enabled him to examine beforehand, with surprising accuracy, all the chances, if we may so speak, of any undertaking in which he proposed to embark. Shutting his eyes to none of the dangers that might by possibility attend it, he brought these into immediate contrast with their opposites ; and he came to his conclusion according as the weight of probabilities appeared to incline to the one side or the other. If it be said that this, at least, is no unusual faculty, for that all men, when placed in situations of responsibility, exercise it ; we answer, that the very reverse is the fact. Not one man in a million is gifted with sufficient clearness of perception to embrace all, and no more than all, the chances for and against an enterprise still in the future : the sanguine naturally overlook the obstacles which may stand in the way of success ; the desponding are equally fertile in magnifying the risks of failure. It is only such a mind as that of Marlborough which can take in all the bearings of the question fairly and honestly, and decide upon it according to its merits. What but a military genius of the highest order would have dictated

the march upon Vienna in 1704? yet how could the empire have been saved had not such march been accomplished?

In addition to this rare faculty of calculation, Marlborough possessed a third quality, without which hours of the most patient inquiry will prove useless; a firmness of purpose which, when a resolution was once taken, hindered him from being diverted from it either by the remonstrances or the apprehensions of others. Entering upon no enterprise till after it had been examined in all its bearings, he ceased, so soon as the movement began, to deliberate; and considering the difficulties by which it was beset only so far as might be necessary to overcome them, he pressed steadily forward towards the end which it was sought to attain. There are a thousand proofs in every one of his campaigns, both of the truth of this observation, and of the benefits attending the habit of mind described: but in none was the unbending resolution of the great commander more prominently exhibited than during the prolonged and harassing siege of Lille. The obstacles opposed to him there were not only gigantic in themselves, but rendered doubly perplexing by the opinion which the allies entertained of them; yet Marlborough met them one after another, and by patience and perseverance overcame them.

With these three principal points of character then, which seem equally requisite for the great general and the great politician, and which, as they are bestowed by nature alone, all the instruction in the world will not create, Marlborough was pre-eminently gifted. He was discreet in communicating with others, sagacious in deliberation, and prompt and decisive in execution. As a military man, on the other hand, he possessed little

science ; that is to say, he could not boast of any intimate acquaintance with the theories of professed tacticians ; nor was his knowledge of engineering, in any of its departments, more than superficial. But these defects, and such they doubtless were, only served to bring more prominently into view excellences far more rare as well as more important. Marlborough has never been surpassed in the perfect knowledge to which he attained as to what men can really perform : in the dexterity which he displayed in making the most of his instruments, we doubt whether he has ever been equalled. Long and painful marches he doubtless executed, when the exigencies of the moment seemed to require them ; but he who examines with a critical eye the operations of the whole war, will find that not a single instance occurs in which the allied troops were harassed beyond their strength, or deprived even during the busiest times of a just proportion of rest. It was this wise consideration for the health of his troops which enabled him to bring them into the field at all seasons fit for their work ; and we have said enough to show that his movements were after all both more rapid and better combined than those of his opponents. We dwell the more strongly upon this fact, because there are men who, in the excess of zeal, look upon an officer as wanting in activity who is not prepared to move, both by night and day, as well in advance as in retreat. No really great general ever indulged wantonly in night marches. Rouse your soldiers as early in the morning as you please ; but unless all be at stake, bring them to their ground, and let them sleep for three hours at least before midnight.

Again, though little read in strategy, Marlborough

had obtained from nature an aptitude in the examination of ground for military purposes, such as she bestows only on the most gifted of mankind. Whether the matter under consideration was the choice of a position for his own army, or the detection of some weak point in that of the enemy, the eagle eye of Marlborough was equally keen ; and of the advantages which either held out, he invariably took advantage with as much promptitude as effect. The battle of Blenheim affords one out of numerous instances of his extraordinary quickness in observing the errors committed by his opponents ; the disposition of the corps which covered the sieges of Lille and Douay, shows how correct were his own views of the military strength of a country.

Of bravery, if by the term be meant the animal courage which prompts men to face danger, the great Marlborough could boast only in common with the meanest of his followers ; but he possessed also that kind of courage which is found to co-exist only with talent of the first order. Neither perils nor difficulties, however unlooked for, deprived him for one moment of the most perfect self-command. In the heat of battle he was as cool and collected as when deliberating with his staff in his tent ; nor was his attention ever so completely engrossed with affairs in one quarter as to render him careless or inattentive to what might be doing elsewhere. At the battle of Blenheim it is true that he led a charge of cavalry in person, and became for a brief space so mingled in the throng that it was impossible to look around ; yet even here all his dispositions were made ; and the smoke had no sooner cleared away than the effects of these dispositions became apparent. Reserves arrived exactly when they were needed ; and Marlbo-

rough flew to some other point, where he saw that his presence appeared more likely to be useful. In like manner, neither the frustration of one part of his plan, nor the necessity thence arising to change it, in any degree discomposed the temper of his mind. At Malplaquet the rashness of the young Prince of Orange had well nigh proved fatal, by deranging the whole order of attack, and costing a prodigious loss of life ; yet Marlborough treated it as an accident not un contemplated, and modified at once his own dispositions to meet the exigency. His campaign of 1711 again, not only displays the same indomitable self-command, but places him in the foremost rank among the masters of manœuvre. The passage of the lines has not been cast into the shade by any subsequent operation in presence of an enemy.

It has been said of Marlborough, by one of his most elaborate biographers, that “ his genius was of English mould, vast, comprehensive, and daring ; attaining its purposes by great and decided efforts, simple in design, and majestic in execution.” We must be pardoned if we venture to say, that we do not exactly comprehend the object of this commendatory sentence. Between English genius and genius as it appears elsewhere we know not how a diversity of character is to be detected ; and as to the remainder of the eulogium, we must confess that to us it is wholly unintelligible. As little are we able to comprehend what the learned author means when he asserts that his hero, “ averse by character as well as principle from defensive warfare, he was always the assailant, and invariably pursued one grand object, regardless of minor consequences.” The leader of an army, if he possess the talents which become his station,

can permit neither principle nor natural bias to direct him in his mode of conducting a war. Wherever the state of affairs shall appear to recommend his acting on the offensive, he will of course, and with all diligence, adopt that system ; when a contrary mode of proceeding seems to hold out better hopes of ultimate success, he will with equal cheerfulness adopt it. The truth is, that the power of choosing between the fitting moment for aggressive and defensive manœuvre is exactly that which, more than any other, belongs to the great military genius. Events so ordered it, that an offensive warfare promised to Marlborough, in all his campaigns, more important ~~and~~ than its opposite ; on this account he pursued it : but had he been differently situated, we cannot for one moment doubt that he would have adapted his tactics, without violating any principle, to the position in which he stood.

In addition to these rare qualities of mind, the Duke of Marlborough was endowed by nature with a person and address more than usually captivating, as well among his inferiors as his equals. To the elegance of that person and that address indeed Lord Chesterfield does not hesitate to attribute a large share of Marlborough's success throughout life ; and though we cannot exactly go so far as the noble author has in the passage to which we allude, we are far from denying that it contains a great deal both of philosophy and sound reasoning. One thing at least is certain, that his mode of addressing the troops, the appearance of interest which he exhibited in his visits to the hospitals, and his manner of speaking to the meanest sentinel whenever he happened to cross his path, rendered him an object of equal love and respect to his followers.

Nor ought it to be forgotten that Marlborough kept up something more than the forms of religion in his camp. He never entered upon a general action of which the plan had been deliberately laid, without himself receiving the sacrament, and causing prayers to be read at the head of every regiment ; and the consequence was, that, to use the words of one who served under him, " cursing and swearing were seldom heard among the officers : and the poor soldiers, many of them the refuse and the dregs of the nation, became, at the close of one or two campaigns, civil, sensible, and clean, and had an air and spirit above the vulgar."

LESSON 6.—*Close of the Lives of Adams and Jefferson.*

In 1820 Mr. Adams acted as elector of president and vicepresident, and in the same year we saw him, then at the age of eighty-five, a member of the convention of this commonwealth, called to revise the constitution. Forty years before he had been one of those who formed that constitution ; and he had now the pleasure of witnessing that there was little which the people desired to change. Possessing all his faculties to the end of his long life, with an unabated love of reading and contemplation, in the centre of interesting circles of friendship and affection, he was blessed in his retirement with whatever of repose and felicity the condition of man allows. He had also other enjoyments. He saw around him that prosperity and general happiness which had been the object of his public cares and labours. No man ever beheld more clearly, and for a longer time, the great and beneficial effects of the services rendered by himself to his country. That liberty which he so

early defended, that independence of which he was so able an advocate and supporter, he saw, we trust, firmly and securely established. The population of the country thickened around him faster and extended wider than his own sanguine predictions had anticipated ; and the wealth, respectability, and power of the nation sprang up to a magnitude which it is quite impossible he could have expected to witness in his day. He lived also to behold those principles of civil freedom which had been developed, established, and practically applied, in America, attract attention, command respect, and awaken imitation, in other regions of the globe ; and well might, and well did, he exclaim, ~~“ Where will the consequences~~ “ Where will the consequences of the American revolution end ! ”

If anything yet remain to fill this cup of happiness, let it be added, that he lived to see a great and intelligent people bestow the highest honour in their gift, where he had bestowed his own kindest parental affections, and lodged his fondest hopes. Thus honoured in life, thus happy at death, he saw the Jubilee, and he died ; and with the last prayers which trembled on his lips, was the fervent supplication for his country, “ Independence for ever ! ”

From the time of his final retirement from public life in 1807, Mr. Jefferson lived as became a wise man. Surrounded by affectionate friends, his ardour in the pursuit of knowledge undiminished, with uncommon health and unbroken spirits, he was able to enjoy largely the rational pleasures of life, and to partake in that public prosperity which he had so much contributed to produce. His kindness and hospitality, the charm of his conversation, the ease of his manners, the extent of his acquirements, and especially the full store of revolution-

ary incidents which he possessed, and which he knew when and how to dispense, rendered his abode in a high degree attractive to his admiring countrymen ; while his high public and scientific character drew towards him every intelligent and educated traveller from abroad. Both Mr. Adams and Mr. Jefferson had the pleasure of knowing, that the respect which they so largely received was not paid to their official stations. They were not men made great by office, but great men, on whom the country for its own benefit had conferred office. There was that in them which office did not give, and which the relinquishment of office did not and could not take away. In ~~their retirement~~, in the midst of their fellow-citizens, themselves private citizens, they enjoyed as high regard and esteem as when filling the most important places of public trust.

There remained to Mr. Jefferson yet one other work of patriotism and beneficence,—the establishment of a university in his native state. To this object he devoted years of incessant and anxious attention, and by the enlightened liberality of the legislature of Virginia, and the co-operation of other able and zealous friends, he lived to see it accomplished. May all success attend this infant seminary ; and may those who enjoy its advantages, as often as their eyes shall rest on the neighbouring height, recollect what they owe to their disinterested and indefatigable benefactor ; and may letters honour him who thus laboured in the cause of letters.

Thus useful, and thus respected, passed the old age of Thomas Jefferson. But time was on its ever-ceaseless wing, and was now bringing the last hour of this illustrious man. He saw its approach with undisturbed serenity. He counted the moments as they passed,

and beheld that his last sands were falling. That day too was at hand, which he had helped to make immortal. One wish, one hope—if it were not presumptuous—beat in his fainting breast. Could it be so—might it please God—he would desire once more to see the sun,—once more to look abroad on the scene around him,—on the great day of liberty. Heaven in its mercy fulfilled that prayer. He saw that sun; he enjoyed its sacred light; he thanked God for his mercy, and bowed his aged head in the grave, “*Felix, non vitæ tantum claritate, sed etiam opportunitate mortis.*”

LESSON 7.—*Character of Professor Playfair.*

It has struck many people, we believe, as very extraordinary, that so eminent a person as Mr. Playfair should have been allowed to sink into his grave in the midst of us, without calling forth almost so much as an attempt to commemorate his merit, even in a common newspaper; and that the death of a man so celebrated and beloved, and at the same time so closely connected with many who could well appreciate and suitably describe his excellences, should be left to the brief and ordinary notice of the daily obituary. No event of the kind certainly ever excited more general sympathy; and no individual, we are persuaded, will be longer or more affectionately remembered by all classes of his fellow-citizens; and yet it is to these very circumstances that we must look for an explanation of the apparent neglect with which his memory has been followed.

We beg leave to assure our readers, that it is merely from an anxiety to do *something* to gratify this natural impatience, that we presume to enter at all upon a subject, to which we are perfectly aware that we are inca-

pable of doing justice. For of Mr. Playfair's scientific attainments—of his proficiency in those studies to which he was peculiarly devoted—we are but slenderly qualified to judge; but we believe we hazard nothing in saying, that he was one of the most learned mathematicians of his age, and among the first, if not the very first, who introduced the beautiful discoveries of the later continental geometers to the knowledge of his countrymen, and gave their just and true place, in the scheme of European knowledge, to those important improvements by which the whole aspect of the abstract sciences has been renovated since the days of our illustrious Newton. If he did not signalize himself by any brilliant or original invention, he must at least be allowed to have been a most generous and intelligent judge of the achievements of others, as well as a most eloquent expounder of that great and magnificent system of knowledge which has been gradually evolved by the successive labours of so many gifted individuals. He possessed indeed, in the highest degree, all the characteristics both of a fine and a powerful understanding, at once penetrating and vigilant, but more distinguished perhaps for the caution and sureness of its march than for the brilliancy or rapidity of its movements, and guided and adorned through all its progress by the most genuine enthusiasm for all that is grand, and the justest taste for all that is beautiful, in the truth or the intellectual energy with which he was habitually conversant.

Mr. Playfair was not merely a teacher: he has fortunately left behind him a variety of works, from which other generations may be enabled to judge of some of those qualifications which so powerfully recommended and endeared him to his contemporaries. It is perhaps

to be regretted that so much of his time and so large a proportion of his publications should have been devoted to the subjects of the Indian astronomy, and the Huttonian theory of the earth : for, though nothing can be more beautiful or instructive than his speculations on those curious topics, it cannot be dissembled that their results are less conclusive and satisfactory than might have been desired ; and that his doctrines, from the very nature of their subjects, are more questionable than we believe they could possibly have been on any other topic in the whole circle of the sciences. A juster estimate of Mr. Playfair's talents, and a truer picture of his genius and understanding, are to be found in his other writings : in the papers, both biographical and scientific, with which he has enriched the Transactions of our Royal Society ; his account of De Laplace, and other articles which he is said to have contributed to the Edinburgh Review ; the Outlines of his Lectures on Natural Philosophy ; and, above all, his Introductory Discourse to the Supplement to the Encyclopædia Britannica, with the final correction of which he was occupied up to the last moments that the progress of his disease allowed him to dedicate to any intellectual exertions.

With reference to these works, we do not think we are influenced by any national or other partiality when we say, that he was certainly one of the best writers of his age ; and even that we do not now recollect any one of his contemporaries who was so great a master of composition. There is a certain mellowness and richness about his style, which adorns without disguising the weight and nervousness which is its other great characteristic ; a sedate gracefulness and manly simplicity in the more level passages ; and a mild majesty and con-

siderate enthusiasm where he rises above them, of which we scarcely know where to find any other example. There is a great equability too, and sustained force, in every part of his writings. He never exhausts himself in flashes and epigrams, nor languishes into tameness or insipidity : at first sight you would say that plainness and good sense were the predominating qualities ; but, by the bye, this simplicity is enriched with the delicate and vivid colours of a fine imagination, the free and forcible touches of a powerful intellect, and the lights and shades of an unerring harmonizing taste. In comparing it with the styles of his most celebrated contemporaries, we would say that it was more purely and peculiarly a *written* style, and therefore rejected those ornaments that more properly belong to oratory. It had no impetuosity, hurry, or vehemence ; no bursts or sudden turns or abruptness, like that of Burke ; and though eminently smooth and melodious, it was not modulated to a uniform system of solemn declamation, like that of Johnson, nor spread out in the richer and more voluminous elocution of Steward ; nor still less broken into that patchwork of scholastic pedantry and conversational smartness which has found its admirers in Gibbon. It is a style, in short, of great freedom, force, and beauty ; but the deliberate style of a man of thought and of learning ; and neither that of wit, throwing out his extempores with an affectation of careless grace, nor of a rhetorician, thinking more of his manner than his matter, and determined to be admired for his expression, whatever may be the fate of his sentiments.

But we need dwell no longer on qualities that may be gathered hereafter from the works he has left behind him. They who lived with him mourn the most for

those which will be traced in no such memorial ; and prize, far above these talents which gained him his high name in philosophy, that personal character which endeared him to his friends, and shed a grace and a dignity over all the society in which he moved. The same admirable taste which is conspicuous in his writings, or rather the higher principles from which that taste was but an emanation, spread a similar charm over his whole life and conversation ; and gave to the most learned philosopher of his day the manners and deportment of the most perfect gentleman. Nor was this in him the result merely of good sense and good temper, assisted by an early familiarity with good company, and a consequent knowledge of his own place and that of all around him. His good breeding was of a higher descent ; and his powers of pleasing rested on something better than mere generosity of nature : he united the most manly firmness, and the highest principles of honour, and the most cheerful and social dispositions, with the gentlest and steadiest affections. Towards women he had always the most chivalrous feelings of regard and attention, and was, beyond almost all men, acceptable and agreeable in their society, though without the least levity or pretension unbecoming his age or condition. And such indeed was the fascination of the perfect simplicity and mildness of his manners, that the same tone or deportment seemed equally appropriate to all societies, and enabled him to delight the young and the gay with the same sort of conversation which instructed the learned and the grave. There never indeed was a man of learning and talent who appeared in society so perfectly free from all sorts of pretension or notion of his own importance, or so little solicitous to distinguish him-

self, or so sincerely willing to give place to every one else. Even upon subjects which he had thoroughly studied, he was never in the least impatient to speak, and spoke at all times without any tone of authority ; while, so far from wishing to set off what he had to say by any brilliancy or emphasis of expression, it seemed generally as if he had tried to disguise the weight and originality of his thoughts under the plainest form of speech and the most quiet and indifferent manner ; so that the profoundest remarks and subtlest observations were often dropped, not only without any solicitude that their value should be observed, but without any apparent consciousness that they possessed any. Though the most social of human beings, and the most disposed to encourage and sympathize with the gayety of others, his own spirits were in general rather cheerful than gay, or at least never rose to any turbulence or tumult of merriment ; and while he would listen with the kindest indulgence to the more extravagant sallies of his younger friends, and prompt them by the heartiest approbation, his own satisfaction might generally be traced in a slow and temperate smile, gradually mantling over his benevolent and intelligent features, and lighting up the countenance of the sage with the expression of the mildest and most gentle philanthropy. It was wonderful indeed, considering the measure of his own intellect, and the rigid and undeviating propriety of his own conduct, how tolerant he was of the errors and defects of other men. He was too indulgent, in truth, and favourable to his friends, and made a kind and liberal allowance for the faults of all mankind, except only faults of baseness or of cruelty, against which he never failed to manifest the most open scorn and detestation. Independent, in

short, of his high attainments, Mr. Playfair was one of the most amiable and estimable of men. Delightful in his manners, inflexible in his principles, and generous in his affections, he had all that could charm in society or attach in private: and while his friends enjoyed the free and unstudied conversation of an easy and intelligent associate, they had at all times the proud and inward assurance that he was a being upon whose perfect honour and generosity they might rely with the most implicit confidence, in life and in death, and of whom it was equally impossible that under any circumstances he should ever perform a mean, a selfish, a *questionable* action, as that his body should cease to gravitate, or his soul to live!

If we do not greatly deceive ourselves, there is nothing here of exaggeration or private feeling, and nothing with which an indifferent and honest chronicler would not concur. Nor is it altogether idle to have dwelt so long on the personal character of this distinguished individual; for we are ourselves persuaded, that his personal character has almost done as much for the cause of science and philosophy among us as the great talents and attainments with which it was combined; and has contributed in a very eminent degree to give to the better society of this our city that tone of intelligence and liberality by which it is honourably distinguished. It is not a little advantageous to philosophy that it is in fashion; and it is still more advantageous perhaps to the society which is led to confer on it this apparently trivial distinction. It is a great thing for the country at large—for its happiness, its prosperity, and its renown—that the upper and influencing part of its population should be made familiar, even in its un-

tasked and social hours, with sound and liberal information, and be taught to respect those who have distinguished themselves by intellectual attainments. Nor is it after all a slight or despicable reward for a man of genius to be received with honour in the highest and most elegant society around him, and to receive in his living person that homage and applause which is too often reserved for his memory. Now those desirable ends can never be effectually accomplished, unless the manners of our leading philosophers are agreeable, and their personal habits and dispositions engaging and amiable. From the time of Hume and Robertson, we have been fortunate in Edinburgh in possessing a succession of distinguished men, who have kept up this salutary connexion between the learned and the fashionable world; but there never perhaps was any one who contributed so powerfully to confirm and extend it, and that in times when it was peculiarly difficult, as the lamented individual of whom we are now speaking : and they who have had the most opportunity to observe how superior the society of Edinburgh is to that of most other places of the same size, and how much of that superiority is owing to the two aristocracies of rank and of letters—of both of which it happens to be the chief provincial seat—will be the best able to judge of the importance of the service he has thus rendered to its inhabitants, and through them, and by their example, to all the rest of the country.

LESSON 8.—Character of Mr. James Watt.

Death is still busy in our high places ; and it is with great pain that we find ourselves called upon, so soon after the loss of Mr. Playfair, to record the decease of another of our illustrious countrymen ; and one to whom

mankind has been still more largely indebted. Mr. James Watt, the great improver of the steam-engine, died on the 25th of April, 1820, at his seat of Heathfield near Birmingham, in the 84th year of his age.

This name fortunately needs no commemoration of ours ; for he that bore it survived to see it crowned with undisputed and unenvied honours ; and many generations will probably pass away before it shall " have gathered all its fame." We have said that Mr. Watt was the great *improver* of the steam-engine ; but in truth, as to all that is admirable in its structure or vast in its utility, he should rather be described as its *inventor*. It was by his inventions that its action was regulated, so as to make it capable of being applied to the finest and most delicate manufactures, and its power so increased as to set weight and solidity at defiance. By his admirable contrivances, it has become a thing stupendous alike for its force and its flexibility, for the prodigious power which it can exert, and the ease and precision and ductility with which it can be varied, distributed, and applied. The trunk of an elephant, that can pick up a pin or rend an oak, is as nothing to it. It can engrave a seal and crush masses of obdurate metal before it ; draw out, without breaking, a thread as fine as gossamer, and lift up a ship of war like a bauble in the air. It can embroider muslin, and forge anchors ; cut steel into ribands, and impel loaded vessels against the fury of the wind and waves.

It would be difficult to estimate the value of the benefits which these inventions have conferred upon the country. There is no branch of industry that has not been indebted to them ; and in all the most material, they have not only widened most magnificently the field of its exertions, but multiplied a thousandfold the amount of

its productions. It is our improved steam-engine that has fought the battles of Europe, and exalted and sustained through the late tremendous contest the political greatness of our land. It is the same great power which enables us to pay the interest of our debt, and to maintain the arduous struggle in which we are still engaged with the skill and capital of countries less oppressed with taxation. But these are poor and narrow views of its importance. It has increased indefinitely the mass of human comforts and enjoyments, and rendered cheap and accessible, all over the world, the materials of wealth and prosperity. It has armed the feeble hand of man, in short, with a power to which no limits can be assigned; completed the dominion of mind over the most refractory qualities of matter; and laid a sure foundation for all those future miracles of mechanic power which are to aid and reward the labours of after generations. It is to the genius of one man too, that all this is mainly owing; and certainly no man ever before bestowed such a gift on his kind. The blessing is not only universal, but unbounded; and the fabled inventors of the plough and the loom, who were deified by the erring gratitude of their rude contemporaries, conferred less important benefits on mankind than the inventor of our present steam-engine.

This will be the fame of Watt with future generations; and it is sufficient for his race and his country. But to those to whom he more immediately belonged, who lived in his society, and enjoyed his conversation, it is not perhaps the character in which he will be most frequently recalled, most deeply lamented, or even most highly admired. Independently of his great train of attainments in the mechanics, Mr. Watt was an extra-

ordinary, and in many respects a wonderful man. Perhaps no individual in his age possessed so much and such varied and exact information, had read so much, or remembered what he had read so accurately and well. He had infinite quickness of apprehension, a prodigious memory, and a certain rectifying and methodising power of understanding, which extracted something precious out of all that was presented to it. His stores of miscellaneous knowledge were immense, and yet less astonishing than the command which he had at all times over them. It seemed as if every subject that was casually started in conversation with him had been that which he had been last occupied in studying and exhausting ; such was the copiousness, the precision, and the admirable clearness, of the information which he poured out upon it without effort or hesitation. Nor was this promptitude and compass of knowledge confined in any degree to the studies connected with his ordinary pursuits. That he should have been minutely and extensively skilled in chemistry and the arts, and in most of the branches of physical science, might perhaps have been conjectured ; but it could not have been inferred from his usual occupations, and probably is not generally known, that he was curiously learned in many branches of antiquity, metaphysics, medicine, and etymology ; and perfectly at home in all the details of architecture, music, and law. He was well acquainted too with most of the modern languages, and familiar with their most recent literature. Nor was it at all extraordinary to hear the great mechanician and engineer detailing and expounding, for hours together, the metaphysical theories of the German logicians, or criticising the measures or the matter of German poetry.

In his temper and dispositions he was not only kind and affectionate, but generous, and considerate of the feelings of all around him, and gave the most liberal assistance and encouragement to all young persons who showed any indications of talent, or applied to him for patronage or advice. His health, which was delicate from his youth upwards, seemed to become firmer as he advanced in years. His friends in this part of the country (Edinburgh) never saw him more full of intellectual vigour and colloquial animation, never more delightful or more instructive, than in his last visit to Scotland in autumn, 1817. Indeed it was after that time that he applied himself with all the ardour of early life to the invention of a machine for mechanically copying all sorts of sculpture and statuary; and distributed among his friends some of its earliest performances, as the productions of a young artist "just entering on his 83d year."

This happy and useful life came at last to a gentle close. He expressed his sincere gratitude to Providence for the length of days with which he had been blessed, and his exemption from most of the infirmities of age, as well as for the calm and cheerful evening of life that he had been permitted to enjoy after the honourable labours of the day had been concluded. And thus, full of years and honours, in all calmness and tranquillity, he yielded up his soul without a pang or struggle, and passed from the bosom of his family to that of his God.

He was twice married, but has left no issue but one son, long associated with him in his business and studies, and two grandchildren by a daughter who predeceased him.

LESSON 9.—*Sir William Herschel.* .

One of the very greatest names in the modern history of astronomical discovery is that of the late illustrious Sir William Herschel; and he also was self-instructed in the science in which he earned his high reputation. Herschel was born at Hanover in 1738, and was the son of a musician in humble circumstances. Brought up, as well as his three brothers, to his father's profession, for which it has been said that he qualified himself without much teaching, he was placed at the age of fourteen in the band of the Hanoverian Guards. A detachment of this regiment having been ordered to England in the year 1757, (or according to another account in 1759,) he and his father accompanied it; but the latter returned to Germany in the course of a few months, and left his son, in conformity with his own wish, to try his fortune in London. For a long time the young man had to struggle with many difficulties; and he passed several years principally in giving lessons in music to private pupils in the different towns of the north of England. At last, in 1765, through the interest of a gentleman to whom his merits had become known, he obtained the situation of organist at Halifax; and next year, having gone to fulfil a short engagement at Bath, he gave so much satisfaction by his performances, that he was appointed to the same office in the Octagon Chapel of that city, upon which he went to reside there. The place which he now held was one of some value; and from the opportunities which he enjoyed besides of adding to its emoluments by engagements at the rooms, the theatre, and private concerts, as well as by taking pupils, he had the certain prospect of deriving a good income from his profession, if he made that his only or his chief object.

But long before this his active and aspiring mind had begun to direct its attention to other pursuits offering a wider scope for the exercise of its talents. While yet only an itinerant teacher of his art in country towns, Herschel had assiduously devoted his leisure, not only to the making himself more completely master of the language of his adopted country, but also to the acquiring of a knowledge of the Italian, the Latin, and even the elements of the Greek. At this time probably he looked to these attainments principally with a view to the advantage he might derive from them in the prosecution of his professional studies ; and it was no doubt with this view also that he afterwards applied himself to the perusal of Dr. Robert Smith's 'Treatise on Harmonics,' one of the most profound works on the science of music which then existed in the English language. But the acquaintance he formed with this work was destined ere long to change altogether the character of his pursuits. He soon found that it was necessary to make himself a mathematician before he could make much progress in following Dr. Smith's demonstrations. He now therefore turned, with his characteristic alacrity and resolution, to the new study to which his attention was thus directed ; and it was not long before he became so attached to it that almost all the other pursuits of his leisure hours were laid aside for its sake.

During his residence at Bath, although greatly occupied with professional engagements, the time he devoted to his mathematical studies was rather increased than diminished. Often, we are told, after a fatiguing day's work of fourteen or sixteen hours among his pupils, he would, on returning home at night, repair for relaxation to what many would deem these severer exercises. In

in this manner, in course of time, he attained a competent knowledge of geometry, and found himself in a condition to proceed to the study of the different branches of physical science which depend upon the mathematics. Among the first of these latter that attracted his attention were the kindred departments of astronomy and optics. It has been stated that Herschel's first attempts in the fabrication of magnifying-glasses were occasioned by his reading something upon that subject in a copy of Smith's *Optics*, which accidentally fell in his way ; but this story is perhaps nothing more than a version of the fact already mentioned, that his acquaintance with the mathematics began in his study of the 'Treatise on Harmonics' by the writer in question. Another account of the matter which has been given is, that having in the course of his philosophical studies applied himself to the sciences of optics and astronomy, he became desirous of beholding with his own eyes those wonders of the heavens of which he read so much, and for that purpose he borrowed from an acquaintance a two-foot Gregorian telescope. This instrument interested him so greatly that he determined to procure one of his own, and commissioned a friend in London to purchase one for him, of a somewhat larger size. But he found the price was beyond what he could afford. To make up for this disappointment he resolved to attempt to construct a telescope for himself ; and after encountering innumerable difficulties in the progress of his task, he at last succeeded, in the year 1774, in completing a five-foot Newtonian reflector. This was the beginning of a long and brilliant course of triumphs in the same walk of art, and also in that of astronomical discovery.

Herschel now became so much more ardently attached

to his philosophical pursuits, that, regardless of the sacrifice of emolument he was making, he began gradually to limit his professional engagements and the number of his pupils. Meanwhile he continued to employ his leisure in the fabrication of still more powerful instruments than the one he had first constructed ; and in no long time he produced telescopes of seven, ten, and even twenty feet focal distance. In fashioning the mirrors for these instruments his perseverance was indefatigable. For his seven-feet reflector, it is asserted that he actually finished and made trial of no fewer than two hundred mirrors before he found one that satisfied him. When he sat down to prepare a mirror, his practice was to work at it for twelve or fourteen hours, without quitting his occupation for a moment. He would not even take his hand from what he was about, to help himself to food ; and the little that he ate on such occasions was put into his mouth by his sister. He gave the mirror its proper shape, more by a certain natural tact than by rule ; and when his hand was once in, as the phrase is, he was afraid that the perfection of the finish might be impaired by the least intermission of his labours.

It was on the 13th of March, 1781, that Herschel made the discovery to which he owes perhaps most of his popular reputation. He had been engaged for nearly a year and a half in making a regular survey of the heavens, when, on the evening of the day that has been mentioned, having turned his telescope (an excellent seven-feet reflector of his own constructing) to a particular part of the sky, he observed among the other stars one which seemed to shine with a more steady radiance than those around it ; and on account of that, and some other peculiarities in its appearance which excited his

suspensions, he determined to observe it more narrowly. On reverting to it after some hours he was a good deal surprised to find that it had perceptibly changed its place—a fact which the next day became still more indisputable. At first he was somewhat in doubt whether or not it was the same star which he had seen on these different occasions; but after continuing his observations for a few days longer, all uncertainty upon that head vanished. He now communicated what he had observed to the Astronomer Royal, Dr. Maskelyne, who concluded that the luminary could be nothing else than a new comet. Continued observation of it however for a few months dissipated this error; and it became evident that it was in reality a hitherto undiscovered planet. This new world, so unexpectedly found to form a part of the system to which our own belongs, received from Herschel the name of the *Georgium Sidus*, or Georgian Star, in honour of the king of England; but by continental astronomers it has been more generally called either *Herschel*, after its discoverer, or *Uranus*. Subsequent observations, made chiefly by Herschel himself, have ascertained many particulars regarding it, some of which are well calculated to fill us with astonishment at the powers of the sublime science which can wing its way so far into the immensity of space, and bring us back information so precise and various. In the first place, the diameter of this new globe has been found to be nearly four and a half times larger than that of our own. Its size altogether is about eighty times that of our earth. Its year is as long as eighty-three of ours. Its distance from the sun is nearly eighteen hundred millions of miles, or more than nineteen times that of the earth. Its density, as compared with that of the

earth, is nearly as twenty-two to one hundred ; so that its entire weight is not far from eighteen times that of our planet. Finally, the force of gravitation near its surface is such, that falling bodies descend only through fourteen feet during the first second, instead of thirty-two feet, as with us. Herschel afterwards discovered, successively, no fewer than six satellites or moons belonging to his new planet.

The announcement of the discovery of the *Georgium Sidus* at once made Herschel's name universally known. In the course of a few months the king bestowed upon him a pension of three hundred a year, that he might be enabled entirely to relinquish his engagements at Bath ; and upon this he came to reside at Slough, near Windsor. He now devoted himself entirely to science ; and the constructing of telescopes and the observation of the heavens continued to form the occupations of the remainder of his life. Astronomy is indebted to him for many other most interesting discoveries besides the celebrated one of which we have just given an account, as well as for a variety of speculations of the most ingenious, original, and profound character. But of these we cannot here attempt any detail. He also introduced some important improvements into the construction of the reflecting telescope, beside continuing to fabricate that instrument of dimensions greatly exceeding any that had been formerly attempted, and with powers surpassing in nearly a corresponding degree what had ever before been obtained. The largest telescope which he ever made was his famous one of forty feet long, which he erected at Slough for the king. It was begun about the end of the year 1785, and on the 28th of August, 1789, the enormous tube was poised on the complicated but inge-

niously contrived mechanism by which its movements were to be regulated and ready for use. On the same day a new satellite of Saturn was detected by it, being the sixth which had been observed attendant upon that planet. A seventh was afterwards discovered by means of the same instrument. This telescope has recently been taken down, and replaced by another of only half the length, constructed by Mr. J. Herschel, the distinguished son of the subject of our present sketch. Herschel himself eventually became convinced that no telescope could surpass in magnifying power one of from twenty to twenty-five feet in length. The French astronomer Lalande, in his continuation of Montucla's History of the Mathematics, states that he was informed by George III. himself, that it was at his desire that Herschel was induced to make the telescope at Slough of the extraordinary length he did, his own wish being that it should not be more than thirty feet long.

So extraordinary was the ardour of this great astronomer in the study of his favourite science, that for many years, it has been asserted, he never was in bed at any hour during which the stars were visible. And he made almost all his observations, whatever was the season of the year, not under cover, but in his garden and in the open air, and generally without an attendant. There was much that was altogether peculiar to himself, not only in the process by which he fabricated his telescopes, but also in his manner of using them. One of the attendants in the king's observatory at Richmond, who had formerly been a workman in Ramsden's establishment, was forcibly reminded, on seeing Herschel take an observation, of a remark which his old master had made. Having just completed one of his best telescopes,

Ramsden, addressing himself to his workmen, said, "This I believe is the highest degree of perfection that we opticians by profession shall ever arrive at ; if any improvement of importance shall ever after this be introduced in the making of telescopes, it will be by some one who has not been taught his art by us."

Some years before his death the degree of Doctor of Laws was conferred upon Herschel by the University of Oxford ; and in 1816, his late Majesty, then Prince Regent, bestowed upon him the Hanoverian and Guelphic Order of Knighthood. He died on the 23d of August, 1822, when he was within a few months of having completed his eighty-fourth year.

LESSON 10.—*Lord Clive.*

The character of Lord Clive, whether we regard him as a soldier, a politician, or a man, is marked by features so bold and so prominent, that the most careless observer of his busy and eventful career can scarcely fail to acquire of it at least a tolerably correct conception. Prompt, decisive, fearless, energetic, unbending, perhaps austere, and little oppressed with scruples, he seemed formed by nature to play a part on the very stage which Providence had ordained that he should tread ; a stage where daring courage was at least as much needed as any faculty of calculation, and a perfect self-command in the midst of difficulties, more valuable than the most profound or sagacious foresight. In expressing ourselves thus, we desire not to be understood as questioning the claims of the subject of this memoir to be regarded as a man of extensive powers of mind, as well as of sober and restrained judgment. The latter quality was not indeed called much into play, because the

circumstances both of the times and of the country demanded action rather than deliberation : nevertheless, his plans both of military operations and civil government were not the offspring of impulse, but originated, as often as they can be said to have matured themselves at all, in discreet consideration. His views, for example, of the posture which it behoved the Company to assume so soon as the real weakness of the native powers became manifest, exhibit him in the light of a wise as well as a bold speculatist ; while the preliminary steps which he judged it proper to take are all distinguished as much by prudence as by decision. So far there can, we conceive, be but one opinion relative to the merits or demerits of Lord Clive, whose faults as well as excellences are palpable to all the world. Considered as a military commander again, we must confess that we feel exceedingly at a loss by what standard to try him. It can scarcely be said that he exhibited at any period of his career the qualities which belong to the great general ; because the nature of the operations which he was called upon to conduct afforded scarcely any room for their display. His enemies were, with few exceptions, undisciplined barbarians, deficient alike in the knowledge and the arms requisite towards the prosecution of modern warfare ; while the force which he himself commanded never exceeded in numbers the strength of an ordinary division. From the perplexity of conducting an extended series of movements he was therefore entirely freed ; and of the labours arising out of the management of the commissariat department, a department on which more than on any other the efficiency of an army depends, he knew nothing. Any comparison therefore between him and the illustrious commanders either of ancient or

modern Europe would be ridiculous, inasmuch as the grounds on which such comparison might alone be formed are wanting. In like manner, his was not a system of partisan warfare, requiring celerity of movement and promptitude of action, in which a small body of men is made to harass and disturb a force against which it were the height of folly to present an open front. Clive, on the contrary, sought his adversary, no matter how superior in point of numbers, in order that he might bring on a battle, at all hazards and under almost any seeming disadvantages ; and he conquered, even at Plassey, rather because he knew the enemy's moral weakness than through any skilful management of his handful of followers. In seeking therefore to arrive at a just estimate of the niche which he is entitled to fill among military leaders, we must abstain as far as possible from contrasting him with others ; and judge of him rather by a reference to general principles than to individual acts performed in other countries.

It is quite certain that Lord Clive possessed to a remarkable degree the quality of moral courage, without which all other talents are useless in the commander of an army. He stood in no dread of the bugbear of responsibility ; and hence his faculties were always clear, unclouded, and in a condition to be applied with full force to the object before him. Again, the attribute of self-command was never enjoyed to a greater degree by any soldier of any nation. Errors he doubtless committed, as at Coverepauk and Buz-Buzia, where he permitted himself to be surprised, and in front of Calcutta, where he executed his eccentric movement through the heart of Suraj-ud-Dowla's camp. Yet the perfect coolness with which he adopted the necessary measures to

remedy evils somewhat needlessly committed abundantly testifies to the extent of his personal bravery, and to the versatility and readiness of his conduct. With a second quality therefore, essential to the composition of the really able commander, he was unquestionably gifted : he possessed the power of handing his troops, as it is called ; in other words, he was a perfect master of the field of battle.

In addition to these excellencies, available to an equal degree in all quarters of the globe, Clive was endowed with a quickness of perception which enabled him to grasp, as it were, at a single glance, both the devices of the enemy and his means of carrying them into effect. To Lawrence perhaps belongs the merit of having first broken the spell which so long kept the English in awe of the native powers ; yet it was Clive who taught them that these powers might not only be resisted but overcome, even when their strength appeared consolidated, and their spirits flushed by recent successes. Now although all this may be regarded as trivial after the event is known, the case was widely different while the chances hung in the balance ; when it was necessary to overbear, not his own scruples only, but the opinions and prejudices of those around him. We conceive therefore, that with a third of those faculties which are necessary towards the formation of a great military mind Clive was fully endowed ; he could calculate on the moral qualities as well as on the physical, both of his own people and of his adversaries.

We have said that Clive was never called upon to arrange a series of operations on an extended scale ; and hence that any comparison between him and a Marlborough or a Wellington were absurd : nevertheless it is

beyond dispute that, for the conduct of that particular species of warfare over which events required him to preside, he gave proof that he was eminently qualified. How far he might or might not have succeeded if called upon to direct one gigantic European army in the face of another it is of course impossible to determine ; but if the theory be correct (and we own that we believe it is so,) which holds that great talents invariably adapt themselves to the circumstances into which their possessor is thrown, then may we fairly enough presume, that on the field of active warfare he would not have been found wanting.

It belongs not to the military biographer of Lord Clive to pass sentence on his conduct either as a statesman or a man. Possibly faults may be detected in both phases of his character, for which however great allowance ought to be made ; inasmuch as in public and in private he was alike beset by temptations of no ordinary nature. But however this may be, England ought never to forget that to him she is indebted for the erection and maintenance of an empire more extensive by far than any which has existed in the world since the downfall of the Roman supremacy.

LESSON 11.—*Sir Samuel Romilly.*

"In person," continues his biographer Mr. Peter, "Sir Samuel Romilly was tall and justly proportioned, with a countenance regular and pleasing, but tinged with deep shades of thought, and susceptible of the greatest or tenderest emotions. His manners were distinguished by singular modesty, unaffected simplicity, and the kindest attention and regard to the wishes and feelings of others. His habits were temperate, studious, and domestic. No

man ever indulged less in those pursuits which the world calls pleasure. He rose regularly at six o'clock; and was occupied during the greater part of the day, and frequently to a late hour at night, either in study or laborious attendance to his professional and parliamentary duties. What little intervals of leisure could be snatched from his toils he anxiously devoted to domestic intercourse and enjoyments. Moderate in his own expenses, he was generous, without ostentation, to the wants of others; and the exquisite sensibility of his nature was never more strikingly displayed than in the fervent zeal with which his professional knowledge was always ready to be exerted for the destitute and oppressed—for those who might seem in their poverty to have been left without a friend. Even to the last, when sinking under the weight of domestic affliction, when anticipating as its probable result a wretched life of mental malady and weakness, he was still intent on the welfare and happiness of those around him. The religion of Sir Samuel Romilly was like his life, pure, fervent, and enlightened. Unclouded by superstition or intolerance, it shone forth in pious gratitude to God and in charity to all mankind."

There is no wisdom more to be desired than that which enables us to estimate at their true relative value the various objects of human ambition. The highest and noblest minds, deficient in this knowledge, have too often wasted or abused their powers, by devoting them to the vainest or the wickedest purposes. The sanction of public applause to actions indifferent or injurious has misled many from the pursuit of purer and more excellent objects; and the world has been justly repaid for its false and dangerous adulation, by the scourging vices

of those whose ambition it has depraved. Some men indeed, with a deeper insight of their own nature and of the true ends and aims of their being, have proposed to themselves a higher and noble course, and have found no object worthy of their ambition unconnected with the happiness, with the improvement, and with the virtue of mankind. To reform and to instruct the human mind, to purify it from the mean and wicked passions which debase it, to purge it of its weaknesses and its errors, and to fill it with all noble views and aspirations, has in every age been the object of that small band of good and virtuous men, the

“Salt of the earth, the virtuous few
Who season human kind.”

Amongst these truly excellent and exalted persons Sir Samuel Romilly has every claim to be ranked. He was in the highest sense of the word a philanthropist, loving mankind with wise and constant affection, not misled by any false sensibility, yet tremblingly alive to their best and truest interests. Without displacing for a moment the beautiful affections of domestic life, the welfare of his fellow creatures ever lay next to the heart of Sir Samuel Romilly; and the feelings which in weaker and meaner minds extend only round the small circle which blood or friendship draws, were in him diffused with undiminished warmth over the wide orbit of human existence.

How noble and pure was the ambition of Sir Samuel Romilly we may learn from the following beautiful passages, where he has explained the motives by which he was actuated in his proposed reforms of the criminal law. “It is not,” said he, “from light motives, it is from no merciful notions of benevolence, that I have ventured to

suggest any alteration in the criminal law of England. It has originated in many years' reflection, and in the long established belief that a mitigation of the severe penalties of our law will be one of the most effectual modes to preserve and advance the humanity and justice for which this country is so eminently distinguished. Since the last session of parliament, I have repeatedly reconsidered the subject : I am more and more firmly convinced of the strength of the foundation upon which I stand ; and even if I had doubted my own conclusions, I cannot forget the ability with which I was supported within these walls ; nor can I be insensible to the humane and enlightened philosophy by which, in contemplative life, this advancement of kindness has been recommended. I cannot therefore hastily abandon a duty which, from my success in life, I owe to my profession ; which as a member of this house I owe to you and to my country ; and which, as a man blessed with more than common prosperity, I owe to the misguided and unfortunate.

“ Actuated by those motives, it is not to be imagined that I shall be easily discouraged by any of the various obstacles so commonly, and perhaps with propriety, opposed to every attempt to alter an established law : upon such a resistance I calculated, but am not to be deterred. I knew that my motives must occasionally be misunderstood by many, and might possibly be misrepresented by others. I was not blind to the road where prudence pointed to preferment ; but I am not to be misled from comforts which no external honours can bestow. I have long thought that it was the duty of every man, unmoved either by bad report or by good report, to use all the means which he possessed for the purpose of advancing the well-being of his fellow-creatures : and I know

not any mode by which I can so effectually advance that well-being as by endeavouring to improve the criminal laws of my country. It has been insinuated that, indebted as I am to the law, commendation rather than censure ought to be expected from me ; and it has been asserted that, under the pretext of proposing apparently immaterial alterations, my real object is to sap and undermine the whole criminal law of England. Such insinuations and assertions have not, I am well aware, been made by any of my honourable and learned friends by whom I am now surrounded, and who have witnessed my whole professional life ; but they have been made, and I must of course suppose have been really believed."

LESSON 12.—*Sir William Jones.*

In December 1783, Sir William Jones entered on the discharge of his judicial functions, and delivered his first charge to the grand jury. "The public," says his biographer, "had formed a high estimate of his oratorical powers : nor were they disappointed. His address was elegant, concise, and appropriate ; the exposition of his sentiments and principles was equally manly and conciliatory, and calculated to inspire general satisfaction, as the known sincerity of his character was a test of his adherence to his professions. In glancing at dissensions which at no remote period had unfortunately prevailed between the supreme executive and judicial powers in Bengal, he showed that they might and ought to be avoided ; that the functions of both were distinct, and could be exercised, without danger of collision, in promoting what should be the object of both, the public good."

Soon after his arrival in India, Sir William Jones began to feel the effects of the climate. In a letter addressed to Dr. Patrick Russell, in March 1784, he says, "I do not expect, as long as I stay in India, to be free from a bad digestion, the *morbus literatorum*, for which there is hardly any remedy but abstinence from too much food literary and culinary. I rise before the sun, and bathe after a gentle ride ; my diet is light and sparing, and I go early to rest ; yet the activity of my mind is too strong for my constitution, though naturally not infirm, and I must be satisfied with a *valetudinarian* state of health."

The judicial life of Sir William Jones in India affords very little incident to the biographer. The time which was not devoted to the performance of his official duties was for the most part consumed in oriental studies. In particular he was desirous of rendering himself a proficient in the science of Sanscrit and Hindu law, so essential to the due administration of justice in India. With a view of encouraging a taste for oriental literature, he projected soon after his arrival the scheme of the Asiatic Society, of which he was constituted the first president. So great was his devotion to his literary pursuits, that he partially relinquished the usual relaxations of society, in order to afford himself more frequent opportunities of applying to his favourite studies. Among the various projects which occupied his mind during his residence in India was the magnificent design of a digest of Hindu and Mahomedan laws, on the model of Justinian ; a design which he submitted in a letter, admirably explanatory of the subject, to the Governor General, Lord Cornwallis. Of this highly important and difficult work, when completed by the labours of native lawyers, he offered himself as the translator ; and the Digest having

been commenced in 1788, he devoted nearly the whole of his leisure hours to its advancement.

In the year 1790, it appears that some offer was made to him with regard to the augmentation of his salary. In a letter addressed to Sir John Macpherson, he says, "I give you hearty thanks for your postscript, which (as you enjoin secrecy) I will only allude to ambiguously, lest this letter should fall into other hands than yours. Be assured, that what I am going to say does not proceed from an imperfect sense of your kindness; but really I want no addition to my fortune, which is enough for me; and if the whole legislature of Britain were to offer me a station different from that which I now fill, I should most gratefully and respectfully decline it. The character of an ambitious judge is, in my opinion, very dangerous to public justice; and if I were a sole legislator, it should be enacted that every judge, as well as every bishop, should remain for life in the place which he first accepted. This is not the language of a cynic, but of a man who loves his friends, his country, and mankind; who knows the short duration of human life; recollects that he has lived four and forty years, and has learned to be contented. Of public affairs, you will receive better intelligence than I am able to give you. My private life is similar to that which you remember: seven hours a day on an average are occupied by my duties as a magistrate, and one hour to the new Indian Digest; for one hour in the evening I read aloud to Lady Jones. We are now travelling to the sources of the Nile with Mr. Bruce, whose work is very interesting and important. The second volume of the Asiatic Transactions is printing, and the third ready for the press. I jabber Sanscrit every day with the pundits;

and hope before I leave India to understand it as well as I do Latin."

In December 1793, Lady Jones, whose health had suffered very severely from her residence in the east, embarked for Europe; and it was the intention of Sir William to follow her at the commencement of the year 1795, though he was fearful that he might be detained by his great task of the Digest of the Indian Laws. In the meantime he gave to the public, in the beginning of 1794, a translation of the ordinance of Menu, comprising the Indian system of duties, religious and civil, which was considered as an institute of Hindu law prefatory to the more copious digest. He still laboured with great assiduity at the latter work; but in consequence of the absence of Lady Jones he devoted a greater portion of his leisure hours to general society.

It is probable that if his life had been spared it would have been devoted to the studious retirement to which, in the latter years of his life, when the ardour of his youthful ambition had somewhat subsided, he seems to have looked forward with a longing desire. In a letter written in 1791 and addressed to Sir Joseph Banks, he says, "The last twenty years of my life I shall spend I trust in a studious retreat; and if you know of a pleasant country-house in your part of Middlesex, with pasture-ground for my cattle, and garden-ground enough for my amusement, have the goodness to inform me of it. I shall be happy in being your neighbour; and though I write little now, will talk then as much as you please."

But his brilliant and useful life was rapidly approaching its termination. One evening in the month of April 1794, after incautiously remaining in conversation till a late hour in the open air, he called upon Lord Teigna-

mouth and complained of aguish symptoms. Those symptoms in fact indicated the existence of a complaint common in Bengal,—an inflammation of the liver. Two or three days afterwards a physician was called in ; but it was too late ; and the disorder, which was unusually rapid, terminated fatally on the 27th April. “ On the morning of that day,” says Lord Teignmouth, “ his attendants, alarmed at the evident symptoms of approaching dissolution, came precipitately to call the friend who has now the melancholy task of recording the mournful event. Not a moment was lost in repairing to his house. He was lying on his bed in a posture of meditation, and the only symptom of remaining life was a small degree of motion in the heart, which after a few seconds ceased, and he expired without a pang or groan. His bodily suffering, from the complacency of his features and the ease of his attitude, could not have been severe ; and his mind must have derived consolation from those sources where he had been in the habit of seeking it, and where alone in our last moments it can ever be found.”

It is much to be regretted that we so rarely find genius and learning united with practical good sense and with a knowledge of the world. “ It unfortunately happens,” says an enlightened writer, “ that the same turn of mind which is favourable to philosophical pursuits, unless it be kept under proper regulation, is extremely apt to disqualify us for applying our knowledge to use in the exercise of the arts and in the conduct of affairs ;” yet these antagonist qualities were so happily blended in the mind of Sir William Jones, that he was no less remarkable for his discretion, his aptitude for business, and his worldly success, than for his astonishing proficiency as a scholar, and for his productions as a man of

genius. His knowledge was extensive, various, and accurate to a degree which has rarely been equalled. As the keys to the literary treasures of other countries, he applied himself very early in life to the acquisition of foreign languages with an assiduity and success which excited the wonder and admiration of his contemporaries. He made himself acquainted critically with eight languages,—English, Latin, French, Italian, Greek, Arabic, Persian, and Sanscrit. Eight were studied less perfectly, but were intelligible to him with the assistance of a dictionary,—Spanish, Portuguese, German, Runic, Hebrew, Bengalee, Hindee, and Turkish ; and on twelve more he had bestowed considerable attention ; Tibetan, Pali, Pahlavi, Deri, Russian, Syriac, Ethiopic, Coptic, Welsh, Swedish, Dutch, and Chinese. His skill in several of these languages he has attested by the excellent translations which he at various times gave to the world. But to have confined the powers of his active and enlightened mind to the acquisition of that which is merely the symbol of ideas—the casket in which the rich treasures of intellect are contained—would have been unworthy of his genius. He applied himself sedulously to the acquisition of true knowledge ; and from the doctrines of philosophy, the records of history, and the teachings of science, derived those higher lessons which regulated his useful and beautiful life. To enumerate the various branches of literature and science in which he excelled, hardly comes within the scope of the present memoir, the chief design of which is to record his professional history.

If an explanation of the means by which he accomplished these extraordinary intellectual labours is sought for, it may be found in that persevering industry which

was so distinguishing a feature of his character, and in the early adoption of the invaluable maxim, that whatever had been attained was attainable by him. "It was," says his biographer, "a fixed principle with him, from which he never voluntarily deviated, not to be deterred by any difficulties that were surmountable from prosecuting to a successful termination what he had deliberately undertaken." This magnanimous confidence in the success of virtuous exertion is the root of greatness. "There is nothing in the world," says Burke, "truly beneficial that does not lie within the reach of an informed understanding and a well-directed pursuit. There is nothing that God has judged good for us that he has not given us the means to accomplish, both in the natural and the moral world."

The professional acquirements of Sir William Jones were undoubtedly of a very high order. He commenced the study of the law at a later period of life than is usual; and he brought with him to the task powers of mind polished to the finest brilliancy by unremitting exercise, and tempered and proved in a variety of pursuits. With these advantages, he applied himself to the study of his profession as to that of a science, resting upon principles, and to be mastered, like other sciences, by an exact and orderly method. His *Essay on the Law of Bailments* affords an instance of the logical manner in which his mind was accustomed to deal with legal subjects; and it has been already stated that he had treated several other branches of the law upon the same model. His acquaintance with legal writers was doubtless very extensive; and his admirable memory enabled him to preserve the greater portion of whatever he perused. As a judge his character stood stainless and unrepined. "The in-

flexible integrity," says his biographer, "with which he discharged the solemn duty of his station will long be remembered in Calcutta both by Europeans and natives. So cautious was he to guard the independence of his character from any possibility of violation or imputation, that no solicitation could prevail upon him to use his personal influence with the members of the administration in India to advance the private interests of friends whom he esteemed, and which he would have been happy to promote. He knew the dignity and felt the importance of his office ; and, convinced that none could afford him more ample scope for exerting his talents for the benefit of mankind, his ambition never extended beyond it. No circumstance occasioned his death to be more lamented by the public than the loss of his abilities as judge, of which they had had the experience of eleven years."

In all the relations of private life Sir William Jones was truly amiable and excellent, securing the respect and winning the affection of all who were fortunate enough to enjoy his intimacy. Amongst these were many of the most distinguished men of his day, one of whom, the friend of his childhood, has drawn in three lines his beautiful and exemplary character. "To exquisite taste, and learning quite unparalloed," says Dr. Parr, "Sir William Jones is known to have united the most benevolent temper and the purest morals."

But the crowning virtue of Sir William Jones's character was his pure and ardent desire to benefit mankind. To this shrine he carried all the rich offerings of his taste, his learning, and his genius. In this great ambition every meaner passion was forgotten. He loved knowledge with that wise love which teaches us that it is the means only, and not the end ; the means of laying open

to man the sources of his true happiness, virtue and freedom, and truth and honour. Unconnected with the interests of his fellow creatures, he knew no ambition. To him power had lost its evil allurements, and riches their debasing influence ; and he so justly estimated the value of fame, as to regard it only when it echoed back the voice of his own pure and uncorrupted conscience. It is the interest as well as the duty of mankind to bestow upon characters like his the full measure of their grateful applause. The world has too long lavished upon its enemies the praises due to those who have truly and faithfully served it ; and it is fitting that the gratitude of mankind should be at length directed to their real benefactors—to those who, opening to them the gates of knowledge, and guarding for them the strongholds of liberty, find their noblest ambition gratified in the divine office of doing good.

CHAPTER VI.

NATURAL HISTORY.

LESSON 1.—*Objects of Natural History.*

IN the “ Evenings at Home ” of Mrs. Barbauld and Dr. Aikin, one of the books for children which may be read with profit by persons of all ages, there is an instructive story entitled “ Eyes and No Eyes, or the Art of Seeing.” Two schoolboys at the close of a holiday set out together to take a summer’s walk : one saunters listlessly on without looking on the right hand or on the left, the other passes nothing without finding some point of interest or amusement. “ I have been,” say:

the saunterer, "to Broom-heath, and so round by the windmill upon Camp Mount, and home through the meadows by the river's side ; and I thought it very dull, for I scarcely met with a single person ; I had rather by half have gone along the turnpike road." "I have had," says the observer, "O ! the pleasantest walk ! I went all over Broom-heath, and so up to the mill at the top of the hill, and then down among the green meadows by the side of the river ; and I am sure I hardly took a step that did not delight me. I have brought my handkerchief full of curiosities home."

In the account which the observant boy subjoins of his interesting ramble (the other had nothing to tell) over the heath and the meadows, it is remarkable that birds constitute more than two thirds of his story. He saw a wheatear hopping about a pile of stones ; a flock of lapwings throwing their fantastic somersets in the air, and one of them tumbling along as if her wing had been broken to lure him from her nest : he saw a kingfisher with its splendid plumage of green, orange, and blue, darting after fish in the brook, along the margin of which a family of sandpipers were hunting down aquatic insects, while some swallows which skimmed along on the wing were ready to dart upon the flies which escaped from these swift-footed pedestrians ; he saw bank-swallows burrowing in the bank to shelter their nests from bad weather and worse enemies ; he saw a heron take her patient stand at a bend of the river to watch for a passing fish, and after a successful capture fly off with her prey to her nest in the woods ; and he saw a troop of starlings as numerous as a swarm of bees,—the same phenomenon which nearly three thousand years before had afforded Homer a fine poetical simile for a troop of

fugitive warriors. "So it is," the narrative concludes, "one man walks through the world with his eyes open, and another with them shut; and upon this difference depends all the superiority of knowledge the one acquires above the other."

There are few persons, even of the well informed, who, like the schoolboy with "his eyes open," take an interest in such common occurrences as a wheatear hopping over stones, or a swallow hawking for flies over a brook. A taste for natural objects must be awakened and cultivated, before enjoyment can be derived from the casual observation (if study be a term too strong and repulsive) of the works of creation, either in their picturesque and poetical aspects, or in their beautiful adaptation to their various purposes. But when an interest in natural productions has been once excited, we may confidently promise that the source of pleasure will become exhaustless, and every walk, however short, will produce, like the ramble of the curious schoolboy, something which has not been observed before.

From the want of a cultivated taste for natural objects, as they are presented to our own eyes, most persons are very partially acquainted with the peculiarities of their own immediate neighbourhood; and hence they are surprised when they chance to meet, in books, with descriptions of the various productions of nature which they have all their lives overlooked.

A gentleman who was fond of reading Buffon, and similar works on Natural History, but who seldom looked into the great book of nature itself, expressed to us his doubts of the account originally given by Heckwelder, of the butcher-bird sticking insects on the point of a thorn as a bait to allure small birds within its reach. He never

thought however of disproving or ascertaining the circumstance, and was surprised beyond measure to be informed that at least one species of the butcher-bird (*Lanius Collurio*) was as common in his immediate neighbourhood as the song-thrush, and therefore opportunities of observing its manners could not be wanting. To satisfy ourselves, as well as to settle the doubts of our friend, we undertook to watch the proceedings both of the species just named and also of the greater butcher-bird, (*L. Excubitor*), both of which are so common that we found about half a dozen of the nests of each within five miles of Lee, in Kent.

We discovered that near those nests large insects, such as humble-bees, and the unfledged nestlings of small birds, were frequently seen stuck upon thorns. We did not succeed in seeing the birds actually impaling these victims upon the thorns; but we obtained what we considered good proof of the fact; for the peasants, who had never heard of Heckwelder's story, all concurred in affirming that the butcher-birds fix their prey upon thorns; not however, according to their belief, to allure larger game, but to kill or secure what has been already captured.

Selby, an eminent living naturalist, has confirmed the fact. "I had the gratification," he says, "of witnessing this operation of the shrike (*L. Excubitor*) upon a hedge chanter (*Accentor modularis*, Bechstein) which it had just killed, and the skin of which, still attached to the thorn, is now in my possession. In this instance, after killing the bird, it hovered with it in its bill for a short time over the hedge, apparently occupied in selecting a thorn for its purpose. Upon disturbing it and advancing to the spot, I found the chanter firmly fixed by the tendons of the wing on the selected twig."

We have mentioned this habit of the butcher-bird (from which he derives his name) partly to show that in every situation there is an ample field for the inquiries of a naturalist, and partly to point out the extreme difficulty of collecting any great body of facts in natural history without the most patient and diligent attention. When Alexander Wilson, the celebrated writer on the birds of the United States, commenced his arduous task of examining every bird of that country with his own eyes, he complained that in the works of European naturalists he could only find "a few vague and formal particulars of their size, specific marks, &c. accompanied sometimes with figured representations that would seem rather intended to caricature than to illustrate their originals." With an enthusiasm never excelled, this extraordinary man, who went to the United States a poor and unfriended Scotch weaver, first taught himself, at the age of forty years, to draw and colour after nature, then applied himself to the study of various branches of knowledge, and having acquired the power of writing clearly and elegantly, as well as of depicting by his pencil what he saw in his rambles, set out to penetrate through the vast territory of the United States, undeterred by forests and swamps, for the sole purpose of painting and describing the native birds. During seven years in which he prosecuted this undertaking, he travelled more than ten thousand miles, "a solitary exploring pilgrim," as he describes himself. His labours were rewarded with no worldly riches or honours, for he had the greatest difficulty in procuring subscribers for his splendid work, and when a bookseller at last undertook to print and publish it, the only remuneration which the author received was a payment for the mechanical labour of colouring

his own plates. But his soul was set upon the one object of his life, that of giving a complete account of one of the most interesting portions of the works of the Creator, as far as the vast continent of North America afforded him opportunities for diligent examination. He passionately pursued his inquiry into the history of birds. In the preface to the fifth volume of his book he says, "To me it appears, that of all inferior creatures, Heaven seems to have intended birds as the most cheerful associates of man ;" and he declares that he has "a thousand times turned, with a delight bordering on adoration, to the magnificent repository of the woods and fields, the grand aviary of nature." Of the difficulties which an accurate student of birds in general has to encounter, and of the particular difficulties which exist in wild and unfrequented districts, Wilson has presented so striking and correct a view, that we cannot deny our readers the pleasure of reading one of the most characteristic passages of this ardent naturalist.

"On many of his subjects it has not been in his power to say much. The recent discovery of some birds, and the solitary and secluded habits of others, have offered great obstacles to his endeavours in this respect. But a time is approaching when these obstacles will no longer exist. When the population of this immense western republic shall have diffused itself over every acre of ground fit for the comfortable habitation of man ; when farms, villages, towns, and glittering cities, thick as the stars of a winter's evening, shall overspread the face of our beloved country, and every hill, valley, and stream have its favourite name, its native flocks, and rural inhabitants ; then not a warbler shall flit through our thickets but its name, its notes, and habits will be familiar to all,

repeated in their sayings, and celebrated in their village songs. At that happy period, should any vestige or memory of the present publication exist, be it known to our more enlightened posterity, as some apology for the deficiencies of its author, that at the period in which he wrote, three fourths of our feathered tribes were altogether unknown even to the proprietors of the woods which they frequented ; that without patron, fortune, or recompense, he brought the greater part of these from the obscurity of ages, gave to each ' a local habitation and a name,' collected from personal observation whatever of their characters and manners seemed deserving of attention ; and delineated their forms and features, in their native colours, as faithfully as he could, as records, at least, of their existence."

LESSON 2.—*Man.*

On the faculties of Mind and the attribute of Speech.

Man has been styled, par excellence, a rational animal ; but it is astonishing what various acceptations are attached to this epithet. Some seem to think that reason is a faculty peculiarly and exclusively characteristic of the human species. Others would extend this power in greater or less proportions to almost all the living tribes of the animated world beside.

It is almost impossible for us to be acquainted with the mental operations of animals to any great extent. Destitute of language, they possess very inadequate means of communicating the results of sensation and consciousness. The only mode we have of judging is by an attentive observation of their actions, and a view of certain relations in which they stand with respect to man.

The vast superiority of man appears in a very striking

light, when we consider the subjection in which he is enabled to hold so large a portion of the animal world. The most stupid of our species possess in this respect a decisive advantage over the most intelligent of the brute creation. Man makes other animals subservient to his purposes, and obedient to his commands. This object is accomplished not by any superior advantages of bodily strength or activity, but by a power of combining and conducting systematic operations, denied by nature to the lower tribes. The strongest and most sagacious of them have no privilege of this description over the weakest and most unintelligent. There is no principle of subordination among animals: the most powerful possess no command, the feeblest own no subserviency; the strong doubtless devour the weak, but this is the result of urgent necessity and carnivorous instinct. There is no resemblance in this to a regular and systematic series of actions all conducing to one common premeditated end. We discover no traces of such a mode of action in animals, we discover no consciousness of superiority in one species over another. We are justified in believing that in this respect all animals are alike, and that probably they are not only far inferior in mental character to man, but utterly dissimilar.

Animals never act in concert or co-operation for common purposes in a similar manner, or on similar principles, with man. The associated labour of certain insect tribes, and the joint operations of the male and female in some of the higher orders, which have reference to the supply of food or continuance of the species, do not in strict propriety form any exception to this position. Such operations are the result of a blind instinct, not of anything similar to human reason; they are never varied

in the mode of performance, nor do the animals which conduct them ever enter upon others of a different kind, and for a different purpose. This arises undoubtedly from the limited extent of their powers of observation and reflection, and forms another characteristic distinction between them and man.

Another grand specific difference between animals and man, to which we have already alluded, but on which we shall here add a few words, is the prodigious, the almost illimitable capacity of improvement in the latter. Animals never improve, at least as species. They perform the same work in the same manner, and in operations peculiar to themselves we discover no gradations of individual excellence or inferiority. Each individual generally remains to the period of his existence, stationary at that degree of advancement at which he arrived in the course of a few months. The lapse of ages has made no improvement in the condition of species. Animals have no traditionary knowledge, nor can they, like man, hoard up the accumulated experience of generations, and bequeath it as a deposit for the use of posterity. Nature has imposed upon them her most imperious command, "Thus far shall ye go, and no farther."

But it is not so with man. Regard him in the origin of society ; weak, naked, and defenceless. Nature has clad in defensive mail the armed rhinoceros, provided the lion and the tiger with the weapons of offence, clothed the sheep in wool and the bear in fur : every animal she has bountifully provided with all that was necessary for its subsistence, and adapted to its destined mode of existence. Man alone she abandoned, unarmed in the midst of dangers, uncovered to the winds of heaven. But she had nevertheless bestowed upon him one gift, much

more than equivalent to all that was denied. She endowed him with inventive genius, which, stimulated to exertion by his varied wants, soon amply supplied them all, and eventually raised him to his measureless superiority over the rest of created beings. To the perfectibility of man's intellect no definite limits can be assigned. He has, as we have said, reduced, by means of his intelligence, most other animals to docility and servitude, and such as their native ferocity render incapable of utility and dangerous to his repose, he has banished to the "howling wilderness." The surface of the earth attests his industry and intelligence, and Nature herself is delighted to obey him. He has drained the unwholesome marsh, turned the course of rivers, banked out the encroaching sea, and cleared the umbrageous forest; with an energy neither tired by labour nor disheartened by difficulty, he has succeeded in producing abundant comfort, utility, and pleasure; the arts which adorn social life, and the blessings which render it valuable. He has scrutinized the mysterious relations of space and time, ascertained the courses and revolutions of the heavenly bodies, and pursued his path with accuracy over the trackless ocean, thus establishing a communication between the remotest nations, and extending far and wide the discoveries of science and the improvements of civilization. When we compare the present state of human advancement with the rude efforts of society in its earlier stages, we are lost in astonishment; and when we recollect the fact, that the human species is still advancing, probably even at an increasing ratio of rapidity; that new discoveries, new combinations, and new improvements are daily, nay hourly, making; though we know full well that the human mind is finite, yet who

shall venture to fix a boundary, beyond which man shall not pass in his gigantic progress to intellectual perfection? "What a piece of work is man! How noble in reason! how infinite in faculties! In form and moving, how express and admirable! in action how like an angel! in apprehension how like a god! the beauty of the world! the paragon of animals."

The last characteristic distinction between man and inferior animals to which we shall advert, is the power of speech allotted to the former. To this, and the invention of writing consequent upon it, man owes a large portion of his superiority. This power is acquired, not connate in man like the cries uttered by different animals. Some have supposed that the want of speech in brutes is owing to defective conformation, to an absence of articulating organs. But this opinion is evidently without foundation. The tongue of a monkey is as well formed for all the purposes of speech as that of a man, yet a monkey cannot speak. That the inability to speak results from no organic defect is clearly proved by the fact of several animals being taught to articulate words and sentences. But this is not speaking; they repeat the sounds like a machine, with no idea whatever of their signification.

Language implies the faculty of pursuing a consecutive train of thought. Brutes are incapable of speech, because they are incapable of such a process of thought. Their sensations are probably as varied as ours; and memory they certainly possess. They exhibit some imperfect traces of the faculties of comparison and judgment; but they have no capacity of generalization and abstraction, operations on which the structure of language so intimately and essentially depends. The range of their association is extremely limited, their ideas are

few in number, and restricted to the individual objects of sense ; and consequently their power of comprehending the relation between thoughts and symbols must be feeble and confined.

The power then of speech forms a grand specific distinction in man. It results from the superiority of his intellectual faculties, corresponds with his other high endowments, facilitates the exercise of his mental powers, and gives them their complete development. Without language there would be no more society among them than among the beasts of the forest. The invention of writing and of printing have rendered the prerogative of speech of tenfold additional value to mankind.

We cannot but advert, though briefly, to certain moral distinctions in man which also result from the superiority of his mental powers, and distinguish him specifically from other creatures. In what is generally termed natural affection, there is a striking difference between man and inferior animals. The attachment of the mother to the offspring is equally strong in both, but it differs materially in the human species as to the period of its duration and the character it finally assumes. In brutes it is apparently purely instinctive, blind, involuntary, irresistible, and lasts no longer than the helpless state of the offspring requires the assistance of the parent : nor is it succeeded by that feeling of tender affection which in man exists through life, a feeling which, holding a due medium between the impulsive force of instinct and the calmer regard of friendship, constitutes the highest enjoyment of human life, and is the basis and cement of society.

The attachment of the dog to his master is certainly a proof in the animal kingdom of the existence of a feel-

ing of a higher order than those which are merely instinctive ; and in the individuals of other tribes we remark, in relation to man, certain demonstrations of a feeling which approximates to friendship. It is very doubtful however, whether other animals ever form unions of friendship among themselves. We are not in possession of any facts sufficiently well authenticated to justify our adopting the affirmative of this question ; the cases of sexual combination for the support and preservation of the offspring, which are merely instinctive, not forming, in our apprehension, any legitimate proof of the existence of what is properly termed friendship. Brutes appear in general to be utterly destitute of mutual sympathy, to be wholly unmoved by the sufferings, and totally indifferent to the joys of one another.

When we compare man with the rest of animated nature, we view him in a most elevated position, and cannot refrain from the language of eulogy and admiration ; but it must be remembered that this very superiority is extremely dangerous, and brings with it a long train of moral obligations, and that when contemplated morally, man presents a very different aspect indeed from that in which we view him zoologically.

LESSON 3.—*Reptiles.*

In the history of nature, exhaustless as is the subject, and varied as the prodigious multitude of productions which it examines, there are parts capable of occupying, for a series of years, with ever-growing interest, the true lover of science, though presenting to the vulgar mind no images but those of terror and disgust. They relate to animals from which the majority of mankind start

with involuntary abhorrence, and which in almost all nations and all ages have been dreaded for their malignancy or despised for their stupidity. In the popular superstitions of different lands, the reptile races have almost invariably been clothed in revolting attributes, and even the worship which has sometimes been paid to them was a religion not of gratitude but of fear. The god of day was armed by the Grecian mythology with his unerring shafts to pierce the enormous Python; the terrific Achelöus was strangled by the son of Jove, in spite of his contorted foldings. The garden of the Hesperides, and the golden fleece, were protected by furious dragons. The serpents of the dripping head of Medusa were sown by Perseus on the arid Libyan sands. The Gorgons, the Furies, discord and envy, were armed with snakes by the poets, as an appropriate emblem of their ministry of vengeance and torture.

But of what consequence, in the estimation of the sage, are the vain opinions and absurd prejudices of mankind? To him are equally indifferent the dream of the poet and the prepossession of the clown. Like a new Cadmus, he becomes the vanquisher of monsters, assisted by the ægis of science and the wand of discovery. He finds that the power of nature is manifested with as much glory in these vile objects of universal animadversion as in the more favourite races which excite our admiration or awaken our cupidity. Her energies are equally exerted and her manifold resources equally developed in their production. The philosopher calmly proceeds to their examination and study, to their enumeration and classification. He sees nothing in the class of reptiles but animals singular in their forms, curious in the diversity of colours by which they are embellished, marvel-

lous in the metamorphoses of some species, and in the extraordinary habits of almost all. Scarcely one sixth of all the individuals of this entire class is venomous. Many among its species furnish wholesome and abundant aliment, restorative medicines, and productions useful in the arts. Some, even the fiercest, such as crocodiles, have been tamed, and will suffer infants to sport upon their backs. So true it is that the superiority and domination of man extend over beings of every class. He can derive from the most ignoble, or the most odious, useful supplies for the necessities of his existence, or new ideas for the extension of his intelligence. Such are among the especial privileges granted to man by the Author of his being, which have elevated him so considerably above all other animals, and which mark the dignified character of his destiny upon earth.

Few beings indeed are more worthy of the attention of the thinking observer than the proscribed and persecuted animals to whose history the course of our labours now conducts us. If the graphic and eloquent descriptions, suggested to the historians of nature by the two preceding classes of the animal kingdom, have power to instruct and delight us, with no less pleasure and profit may we accompany them in their researches on the present, and penetrate into the sombre retreats of the reptile races, in the bosom of the earth, behind the broken masses of the rock, or under the scattered debris of gigantic vegetables. We may pursue their evolutions over the tranquil surface of lakes, of streams, and rivers; mark the tortuous folds by which they attach themselves to the branches; and unveil the mechanism by which they creep, climb, walk, run, leap, and even fly.

LESSON 4.—*Pairing of Insects.*

The diversity of character and habit exhibited by various animals with regard to sociality, seems to have been originally impressed upon them by Providence, in conformity to their several wants and the purposes they were designed to fulfil in the scale of creation. Those for example, which have been intended to subsist by rapine are for the most part disposed to live solitary ; and accordingly the lion, the eagle, and the dragon-fly, pursue their prey alone, two individuals being rarely seen in the same circle. To this however there are some exceptions :—the most remarkable which occur to us take place among wolves, who often hunt in troops, as well as wild dogs and jackals ; swallows, who congregate to hawk for flies ; and spiders of various species, whose nets are often spread contiguous to one another, sometimes even in contact. The latter appears the more singular, that spiders, though of the same species, have no hesitation in devouring one another when they can make a capture ; but we have remarked that those who weave snares will not touch anything which they have not themselves entrapped ; and in an instance we have just been examining, of a garden spider (*Epeira diadema*) which had taken advantage of the suspensory cable line of a long-bodied spider (*Tetragnatha extensa*), to save itself the trouble of making an exterior framework for its net, it was not likely, considering their extreme vigilance, that either would fall into the other's toil.

On the other hand, animals which feed on vegetables or inanimate substances usually incline to be gregarious, if not decidedly social ; because, for one reason, the material of their food is, for the most part, in sufficient abundance to allow of this, and in the instance of car-

tion, it is necessarily confined to a limited space. Accordingly, "Where the carcass is, there will the vultures be gathered together," though otherwise the vulture is not perhaps more socially disposed than the eagle, or than the burying-beetles (*Necrophora*), which lend their assistance in destroying dead carcasses, and removing the nuisance they would produce. This congregating for the purpose of feeding seems in some instances to be either a cause, or a consequence, of social feelings and habits, which continue to influence the individuals when apart; and hence it is that a cow or a sheep will thrive better when amongst its fellows than when kept in a cottage-paddock alone. Even two or three are not content by themselves; and we have seen in such cases every effort made to leap hedges and cross ditches and canals, by small groups of cows, desirous of associating with their kindred,—the parties on the opposite sides of the intervening obstacle appearing to be equally solicitous to surmount it. Such endeavours have always reminded us of the Frenchman in the back settlements in Louisiana, who, if we may credit the Abbe de Pratz, annually travelled to New Orleans, a distance of 300 miles, for no other purpose than to find people to talk with. In other cases however, the habit of feeding or of travelling gregariously does not produce a permanent influence; for the skylark (*Alauda arvensis*), and numerous other birds which congregate in winter, separate at the approach of the breeding season; while rooks, that breed in society, separate as soon as the young can provide for themselves. The latter however is perhaps peculiar to the rook; for sea-birds, which usually nestle together in great numbers, also continue to congregate all the year.

It would appear then, from these illustrations, that animals generally congregate principally on account of the nature of their food ; but it is also obvious, that even the most unsocial must lay aside some portion of their solitary habits during the breeding season, otherwise their race would soon become extinct. The proceedings of insects in this respect are so exceedingly different from all other orders of animals, that they will require to be exhibited in some detail. We have headed this chapter by the word "pairing," as the only unobjectionable term we could find ; yet if the idea formed of this, from the habits of most birds, be transferred to insects, it will require great modification to render it applicable ; for we question whether any species of insect can be said to pair in the manner of linnets, sparrows, and other birds, upon the principle of mutual assistance in rearing their progeny. Even in the instance of birds, the male always shows less solicitude in building the nest and feeding the young than the female, his chief office appearing to be the feeding of the female while she sits upon the eggs, or the taking of her place while she procures food for herself.

Among insects however, we are not aware of any assistance ever rendered by the male in any of those circumstances ; and in the case of sitting upon the eggs, the only instance in which it occurs being among spiders, who have their nets ready spread contiguous to their nest, or carry it about with them, assistance seems to be little necessary. In the case of nest-building, on the other hand, where laborious operations have to be performed, we might have expected that the male would lend his assistance, such as in the structures of the mason-bee, or the carpenter-wasp ; but, so far as we are

at present aware, the female performs the whole of the labour. The only circumstance we remember which bears any resemblance to such mutual aid, occurs among a species of solitary bees (*Halictus*), which constructs galleries in sandbanks, but which, according to Walekenaer, works during the night only, while during the day, either the male or the female always remains at the entrance, prepared to repel the intrusions of enemies. It does not appear however that the male renders any assistance in digging out the gallery which he thus helps to defend.

In the instance of carnivorous insects, so far from rendering each other mutual assistance, it is no unusual occurrence for the one sex to attack and devour the other; and the female, being always the larger and more powerful, usually overcomes her partner. We know too little of the manners of fish to assert that similar habits prevail amongst them; yet it seems by no means improbable that a hungry pike (*Esox lucius*) would make little ceremony of devouring his mate; for it devours its own species as readily as any other, some of considerable size having been found in the stomachs of those that have been caught. We have ourselves frequently caught mackerel and other sea fish with baits cut from the bodies of their comrades previously taken. The male of spiders not unfrequently falls a victim to his mate. Baron de Geer saw one that was seized by the object of his attention, enveloped by her in a web, and then devoured, a sight which he says filled him with horror and indignation. This may in part account for the small number of male spiders we find compared to the females, the latter being, we should think, from fifty or a hundred to one. Were the females not very prolific therefore, and ex-

ceedingly solicitous to preserve their eggs, the race would probably soon become extinct.

LESSON 5.—*Migrations of Insects.*

The shepherds of the Alps, as we learn from Saussure, as soon as the snows are melted on the sides of the mountains, transfer their flocks from the valleys below to the fresh pasture revived by the summer sun, in the natural parterres and patches of meadow land formed at the foot of crumbling rocks, and sheltered by them from mountain storms; and so difficult sometimes is this transfer to be accomplished, that the sheep have to be slung by means of ropes from one cliff to another before they can be stationed on the little grass-plot above. A similar artificial migration (if we may use the term) is effected in some countries by the proprietors of bee-hives, who remove them from one district to another, that they may find abundance of flowers, and by this means prolong the summer. Sometimes this transfer is performed by persons forming an ambulatory establishment, like that of a gipsy horde, and encamping wherever flowers are found plentiful. Bee caravans of this kind are reported to be not uncommon in some districts of Germany; and in parts of Italy and France the transportation of bees was practised from very early times. But a more singular practice in such transportations was to set the bee-hives afloat on a canal or river; and we are informed that in France, one bee-barge was built of capacity enough for from sixty to one hundred hives, and by floating gently down the river, the bees had an opportunity of gathering honey from the flowers along the banks. In lower Egypt, where the blowing of flowers is considerably later than in the upper dis-

tricts, the practice of transporting bee-hives is much followed. The hives are collected from different villages along the banks, each being marked and numbered by individual proprietors, to prevent future mistakes. They are then arranged in pyramidal piles upon the boats prepared to receive them, which floating gradually down the river, and stopping at certain stages of their passage, remain there a longer or a shorter time, according to the produce afforded by the surrounding country. In this manner the bee-boats sail for three months: the bees having culled the honey of the orange flowers in the south, and of the Arabian jasmine and other flowers in the more northern parts, are brought back to the places from which they had been carried. This procures for the Egyptians delicious honey and abundance of bees' wax. The proprietors in return pay the boatmen a recompence proportioned to the number of hives which have been thus carried about from one extremity of Egypt to the other. The celebrated traveller Niebuhr saw upon the Nile, between Cairo and Damietta, a convoy of 4000 hives in their transit from upper Egypt to the coast of the Delta.

These artificial transportations of a domesticated race of insects exhibit a partial example of what frequently takes place in a natural manner, when it is necessary to shift from one place to another for the sake of a better supply of food. In many cases however, where food is abundant and other circumstances favourable, particular insects limit their excursions to a very narrow range.

Some of the more remarkable migrations of insects are, in the same way, for the purpose of depositing their eggs, or disposing of their supernumerary progeny in suitable localities; in the case, for example, of ants and

bees. Kirby and Spence have given the following animated and eloquent account of the migrations of the former. "In the warm days that occur from the end of July to the beginning of September, and sometimes later, the habitations of the various species of ants may be seen to swarm with winged insects, which are the males and females, preparing to quit for ever the scene of their nativity and education. Everything is in motion, and the silver wings, contrasted with the jet bodies which compose the animated mass, add a degree of splendour to the interesting scene. The bustle increases, till at length the males rise, as it were by one general impulse into the air, and the females accompany them. The whole swarm alternately rises and falls, with a slow movement, to the height of about ten feet, the males flying obliquely with a rapid zig-zag motion, and the females, though they follow the general movement of the column, appearing suspended in the air like balloons, seemingly with no individual motion, and having their heads turned towards the wind.

"Sometimes the swarms of a whole district unite their infinite myriads, and seen at a distance produce an effect resembling the flashing of an aurora borealis. Rising with incredible velocity in distinct columns, they soar above the clouds. Each column looks like a kind of slender network, and has a tremulous, undulating motion, which has been observed to be produced by the regular alternate rising and falling just alluded to. The noise emitted by myriads and myriads of these creatures does not exceed the hum of a single wasp. The slightest zephyr disperses them; and if in their progress they chance to be over your head, if you walk slowly on, they will accompany you, and regulate their

motions by yours. The females continue sailing majestically in the centre of these numberless males, who are candidates for their favour, till some fortunate lover darts upon each, and, as the Roman youth did the Sabine virgins, drags his bride from the sportive crowd, and the nuptials are consummated in mid-air ; though sometimes the union takes place on the summit of plants, but rarely in the nests. After this dance de l'amour is celebrated, the males disappear, probably dying, or becoming, with many of the females, the prey of birds or fish ; for, since they do not return to the nest, they cannot be destroyed, as some have supposed, like the drone-bees, by the neuters. That many, both males and females, become the prey of fish, I am enabled to assert from my own observation. In the beginning of August, 1812, I was going up the Orford river in Suffolk in a rowboat in the evening, when my attention was caught by an infinite number of winged ants, both males and females, at which the fish were everywhere seen darting, floating alive on the surface of the water. While passing the river, these had probably been precipitated into it, either by the wind or by a heavy shower which had just fallen ; and M. Huber, after a similar event, observed the earth strewn with females that had lost their wings, all of which could not form colonies.

“ Captain Haverfield, R. N., gave me an account of an extraordinary appearance of ants observed by him in the Medway, in the autumn of 1814, which is confirmed by the following letter, addressed by the surgeon of the *Clorinde*, now Dr. Bromley, to Mr. MacLeay : ‘ In September, 1814, being on the deck of the hulk to the *Clorinde*, my attention was drawn to the water by the first Lieutenant (Haverfield) observing there was some-

thing black floating down with the tide. On looking with a glass, I discovered they were insects. The boat was sent, and brought a bucket full of them on board ; they proved to be a large species of ant, and extended from the upper part of Salt-pan Reach out towards the great Nore, a distance of five or six miles. The column appeared to be in breadth eight or ten feet, and in height about six inches, which I suppose must have been from their resting one upon another. These ants were winged. Whence this immense column came, was not ascertained. From the numbers here agglomerated, one would think that all the ant-hills of Kent and Surry could scarcely have furnished a sufficient number of males and females to form it.'

" When Col. Sir Augustus Fraser, of the horse artillery, was surveying, on the 6th of Oct. 1813, the scene of the battle of the Pyrenees, from the summit of the mountain called Penade Aya, or Les Quartres Couronnes, he and his friends were enveloped by a swarm of ants, so numerous as entirely to intercept their view, so that they were glad to remove to another station in order to get rid of them."

Our readers will feel equal interest in a migration of ants of a different kind, which was first circumstantially recorded by the younger Huber, though it attracts and has attracted the notice of every observer. There are few gardens, even of small extent, which do not contain one or more colonies of the negro-ants (*Formica fusca*), or the turf-ants (*Myrmica cœspitum*), and these are perhaps the most restless emigrants of the whole family (*Formicidæ*, Leach) ; for their edifices, being constructed among the grass or in the sand, are liable to be destroyed by the foot of every passenger, if not in the operations of gardening ; and whenever such accidents

occur, they become fidgetty and dissatisfied with the old place, and soon set about selecting a new one. When watching their architectural proceedings, accordingly, we have been frequently disappointed in our expectations by the little colonists decamping altogether, instead of making good the bits of wall which we had broken down for the sake of experiment. During the summer of 1830 we paid considerable attention to a numerous colony of the negro-ant (*I. fusca*), established on a sloping border at the root of a carnation ; but soon after the plant came into flower, the ants resolved to migrate to the other side of the gravel walk, having been probably disturbed by gathering the flowers, or invited by the shelter of a thick pear-tree that overhung the border to which they had removed. Their march, as is usual, was very orderly, confined to a direct line sufficiently broad to let two pass without jostling ; and their first concern was to form a covert way at the end which terminated in the new establishment. Along this high road might be seen the busy inhabitants carrying off eggs and pupæ from their former domicile, and in the earlier part of the removal some were carrying their companions for the purpose of showing them the road ; but when once it was sufficiently imbued with their odour to be recognised, this clumsy method of imparting information was given up. We found however that we could again set them upon the carrying process by pressing our foot across their track, or otherwise obliterating the odour left by their previous passengers. In this case, an emigrant is completely bewildered the instant he arrives at the broken line, as much as a hound would be if a bush-harrow had been dragged across the track of the hare or the fox of which he is in chase.

In another garden, in which there are at least a dozen colonies of the turf-ant and of the red ant (*Myrmica rubra*), we seldom go round it without seeing some of them moving their pupæ to a newly selected spot, or dragging each other from one chink in the soil or plot of grass to another. A notice to quit the settlement is generally obeyed with alacrity, the whole colony immediately undertaking the labour of constructing a new encampment, as well as of removing thither all that they esteem most valuable, following the individual ant that first decides on the new location (as the Americans term it).

LESSON 6.—*The Petrel.*

The bird which approaches the nearest to the bank-swallow in its manner of breeding is the stormy petrel (*Thalassidroma pelagica*, Vigors), the storm-swallow of the Dutch, whose great power of wing enables it to sweep over the ocean at every distance from land, and even to weather the most tempestuous winds, while with its webbed feet and light form it can actually walk upon the billows with as much ease as a sparrow can hop along a garden walk. "It is indeed an interesting sight," says Wilson, "to observe these little birds in a gale, coursing over the waves, down the declivities and up the ascents of the foaming surf that threatens to burst over their heads, sweeping along the hollow troughs of the sea as in a sheltered valley, and again mounting with the rising billow, and just above its surface, occasionally dropping their feet, which, striking the water, throw them up again with additional force, sometimes leaping, with both legs parallel, on the surface of the roughest waves for several yards at a time. Meanwhile they con-

tinue coursing from side to side of the ship's wake, making excursions far and wide to the right and to the left, now a great way ahead, and now shooting astern for several hundred yards, returning again to the ship as if she were all the while stationary, though perhaps running at the rate of ten knots an hour. But the most singular peculiarity of this bird is its faculty of standing and even running on the surface of the water, which it performs with apparent facility. When any greasy matter is thrown overboard, these birds instantly collect around it, facing to windward, with their long wings expanded and their webbed feet patting the water. The lightness of their bodies and the action of the wind on their wings enable them with ease to assume this position. In calm weather they perform the same manœuvre by keeping their wings just so much in action as to prevent their feet from sinking below the surface."

"There are," says the same writer in another place, "few persons who have crossed the Atlantic that have not observed these solitary wanderers of the deep, skimming along the surface of the wild and wasteful ocean; flitting past the vessel like swallows, or following in her wake, gleaning their scanty pittance of food from the rough and whirling surges. Habited in mourning, and making their appearance generally in greater numbers previous to or during a storm, they have long been fearfully regarded by the ignorant and superstitious, not only as the foreboding messengers of tempests and dangers to the hapless mariner, but as wicked agents connected somehow or other in creating them. 'Nobody,' say they, 'can tell anything of where they come from, or how they breed, though (as sailors sometimes say) it is supposed that they hatch their eggs under their wings as

they sit on the water.' This mysterious uncertainty of their origin, and the circumstances above recited, have doubtless given rise to the opinion so prevalent among this class of men, that they are in some way or other connected with the prince of the power of the air. In every country where they are known their names have borne some affinity to this belief. They have been called witches, stormy petrels, the devil's birds, and Mother Carey's chickens, probably from some celebrated ideal hag of that name ; and their unexpected and numerous appearance has frequently thrown a momentary damp over the mind of the hardiest seaman. It is the business of the naturalist, and the glory of philosophy, to examine into the reality of these things ; to dissipate the clouds of error and superstition wherever they darken and bewilder the human understanding, and to illustrate nature with the radiance of truth.

When we inquire, accordingly, into the unvarnished history of this ominous bird, we find that it is by no means peculiar in presaging storms ; for many others of very different families are evidently endowed with an equally nice perception of a change in the atmosphere. Hence it is that before rain swallows are seen more eagerly hawking for flies, and ducks carefully trimming their feathers, and tossing up water over their backs to try whether it will run off again without wetting them. But it would be as absurd to accuse the swallows and ducks on that account of being the cause of rain as to impute a tempest to the spiteful malice of the poor petrels. Seamen ought rather to be thankful to them for the warning which their delicate feelings of ærial change enable them to give of an approaching hurricane.

"As well," says Wilson, "might they curse the mid-

night lighthouse that, star-like, guides them on their watery way ; or the buoy that warns them of the sunken rocks below, as this harmless wanderer, whose manner informs them of the approach of the storm, and thereby enables them to prepare for it." The petrels are nocturnal birds : when therefore they are seen flying about and feeding by day, the fact appears to indicate that they have been driven from their usual quarters by a storm ; and hence perhaps arose the association of the bird with the tempest. Though the petrels venture to wing their way over the wide ocean as fearlessly as our swallows do over a mill-pond, they are not therefore the less sensible to danger ; and, as if feelingly aware of their own weakness, they make all haste to the nearest shelter. When they cannot then find an island or a rock to shield them from the blast, they fly towards the first ship they can descry, crowd into her wake, and even close under the stern, heedless it would appear of the rushing surge, so that they can keep the vessel between them and the unbroken sweep of the wind. It is not to be wondered-at in such cases, that their low wailing note of weet, weet, should add something supernatural to the roar of the waves and whistling of the wind, and infuse an ominous dread into minds prone to superstition.

If these views be correct, as to us they appear to be, Mr. Knapp has not represented in its true light the appearance of this little bird in stormy weather, although his conjecture is ingenious. "The petrels," says he, "seem to repose in a common breeze ; but upon the approach or during the continuation of a gale, they surround a ship, and catch up the small animals which the agitated ocean brings near the surface, or any food

that may be dropped from the vessel. Whisking with the celerity of an arrow through the deep valleys of the abyss, and darting away over the foaming crest of some mountain wave, they attend the labouring bark in all her perilous course. When the storm subsides, they retire to rest and are no more seen."

LESSON 7.—*The Alpine Marmot.*

The alpine marmot is distinguishable exteriorly by a thick inelegant body, short thick legs, large and flat head, short truncated ears, short tail, incapable apparently of elevation, and a general clumsiness of appearance.

Predestined and constructed principally for a subterranean existence, with few other requisites for nourishment than the grass, whether green or dry, which surrounds its habitation; provided with a sufficient defence against most of its enemies in its burrow, and passing one half the year in an uninterrupted lethargy, the marmot has little occasion for the sagacity of the beaver or the rat, or the agility of the squirrel or the hare, or in fact any very positive character to maintain its existence. Accordingly we find its locomotion is slow, it raises itself not without an apparent effort, and though a climber in its natural state, it is slowly, and by pushing against the back as well as by the feet, that it mounts the clefts and projections of its native mountains.

The marmots are not found at any distance from their burrow, wherein they live in families, and a very remarkable instinct is observed among them on occasion of quitting their retreat. When they do so, one of the family is placed on an elevated spot near the mouth of the burrow and within sight of the rest who are seeking food. If an enemy or any new object be observed by

the sentinel on guard, he utters a shrill cry, when in an instant the whole company make all haste to their retreat, or if too far from the mouth of the burrow, seek instantly a hidingplace in some cleft or hole. We have here a remarkable instance of the care of Providence over the creatures of this world, among whom universal inequality is not the least notable of the general accidents of their existence. Inequality seems necessarily, in the state of things around us, to generate tyranny, and the world would very soon be left in possession of a very few whose physical powers were indomitable, did not Providence interfere in an endless variety of modes in favour of his weaker creatures.

These interferences, when employed through the instrumentality of instinct, are at once striking and inexplicable. They never seem unnecessarily or prodigally brought into action; but on the contrary, are ever essential to the continuation of a race: but when employed, their perfection generally outstrips the utmost refinement of reason. This indeed may be explained in the words of the poet,

Reason raise o'er Instinct as you can,
In this 'tis God directs, in that 'tis man.

The burrow of the marmot is generally in the elevated parts of the southern European mountains, above the limits of the forest, and in the regions of perpetual snow. It is formed of an alley or gallery five or six feet long, sufficient only in size to permit the animal to pass; at the extremity of this alley is a circular excavation, in which the marmot retires and hybernates: sometimes the circular cave has two outlets, forming an acute angle like the letter *y*. An excavation is said always to be found in one of the alleys, which is presumed to be made

by the animal, in procuring earth to stop the mouth of the burrow previous to its entering on its long winter sleep. The commencement of their lethargy seems to depend on the beginning of the cold, which varies from the middle of September to the middle of October: the newly formed families then begin their excavations, and provide dried grass to lie on. M. F. Cuvier informs us that they make a spherical bundle of this dry grass, and press it into a state of tolerable consistency, and lie upon it with the head brought down between the legs; and he adds, that in order to close the entrance of their retreat, they at last enter it backward with a bundle of hay in the mouth, which they contrive to leave at the opening, so as effectually to close it up.

The marmots passing the whole winter in a deep lethargy make no reserve of provisions, and they become extremely thin during this long period of abstinence, which renders their flesh hard and coriaceous. At the commencement of winter, when they are very fat, the mountaineers seek them for the sake of the meat, which however, even then would not be very agreeable to refined palates; their fat has the taste and appearance of lard.

LESSON 8.—*The Flight of Birds.*

Nothing is more wonderful to the contemplation of the natural philosopher than this power of flight. Its mechanism is combined with such astonishing skill, and rests upon such powerful resources, that no machine, invented by the most able mechanician, has as yet been found capable of imparting such a faculty to man. All who, without the aid of a balloon, (which is not flying,

but a sort of sailing,) have attempted to elevate themselves into the air, have shared the fate of Icarus.

We shall enrich our pages with a few of the reflections of the illustrious Buffon on this subject. "To give some idea of the duration and continuity of motion in birds, and likewise of the proportion of time and space which their courses occupy, we shall compare their swiftness with that of quadrupeds in their greatest progressions, whether natural or forced. The stag, the reindeer, and the elk, can go through forty leagues in a single day. The reindeer, harnessed to a sledge, can make thirty, and continue this many days in succession. The camel can make three hundred leagues in eight days. The horse, educated for the race, and chosen from among the lightest and most vigorous, can perform a league in six or seven minutes ; but his speed soon relaxes, and he would be incapable of supporting a longer career with the spirit and celerity with which he commenced. We have cited the example of an Englishman who went seventy-two leagues in eleven hours and thirty-two minutes, having changed horses one-and-twenty times ; thus the best horses can make no more than four leagues in an hour, nor more than thirty leagues a day. But the swiftness of birds is considerably greater. In less than three minutes we lose sight of a large bird ; of a kite, for example, which proceeds horizontally, or an eagle, vertically, and the diameter of whose extent in flying is more than four feet. From this we may infer, that the bird traverses more than a space of four thousand five hundred feet in a minute, and that he can proceed twenty leagues in an hour. He may then easily proceed at the rate of two hundred leagues a day, flying for only ten hours. This supposes many intervals in the day,

and the entire night for repose. Swallows, and other birds of passage, may thus proceed from our climate to the line in less than seven or eight days. M. Adanson has seen and caught on the coast of Senegal swallows which arrived there the 9th of October, that is, eight or nine days after their departure from Europe. Pietro della Valle says, that in Persia, the carrier-pigeon makes greater way in one day than a man on foot can in six. The story of the falcon of Henry II. is well known, which, pursuing with eagerness a smaller bustard at Fontainebleau, was taken the following day at Malta, and recognized by the ring which she bore. A falcon from the Canary islands, sent to the duke of Serma, returned from Andalusia to the isle of Teneriffe in sixteen hours, which is a passage of two hundred and fifty leagues. Sir Hans Sloane assures us that at Barbadoes, the sea-gulls proceed in flocks to a distance of more than two hundred miles, and return again the same day. A course like this, of more than one hundred and thirty leagues, sufficiently indicates the possibility of a voyage of two hundred; and I believe we may conclude, from the combination of all these facts, that a bird of elevated flight can traverse every day four or five times as much space as the most agile quadruped.

“ Everything contributes to this facility of motion in the bird. First the feathers, whose substance is very light, whose surface is very extensive, and whose tubes are hollow; then the arrangement of these same feathers, the form of the wings, convex above and concave below, their firmness, their great extent, and the force of the muscles which move them; finally, the lightness of the body, the most massive parts of which, such as the bones, are much lighter than those of quadrupeds, for

the 'cavities of the bones in birds are proportionally much greater than in quadrupeds, and the flat bones which have no cavities are much more slender and less weighty. 'The skeleton of the onocrotalus,' say the anatomists of the academy, 'is extremely light. It weighs but three-and-twenty ounces, though remarkably large.' This lightness of the bones considerably diminishes the weight of the bird; and we shall find, in weighing the skeleton of a quadruped with that of a bird in the hydrostatic balance, that the first is specifically heavier than the other."

With means like these, the bird is enabled to travel in the air. Its specific lightness; the vigour of its wings; the nimbleness of its motion; the directions of its tail, which serves as a rudder; permit it to ascend, to descend, to turn, to flutter in all directions, to cut in a right line, to shave the surface of the earth or water, to hide itself in the clouds, and in a word, to sport at its pleasure in the immense field of the atmosphere. Sometimes it will descend to gather the seeds in the fields, and sometimes, elevating itself above the clouds, respire the pure and serene air under the azure sky, while terrestrial animals are battered by the tempest and menaced by the lightning. Birds of high flight, enveloped in a warm, thick, and downy plumage, fear nothing of the piercing cold of the loftiest regions of our atmosphere. It is remarkable that birds employed in falconry, which their trainers are desirous of preventing from flying to too great an elevation, never mount but to a moderate height when deprived of the feathers of the belly and sides, because they are then afraid of the effects of cold. The water-fowl provided with a thick down and an oiled plumage, which do not suffer the moisture to penetrate, plough

the surface of the seas and lakes with perfect safety. Nature moreover has provided all birds with a certain gland, which distils over the crupper an oily humour, with which they anoint their plumes, passing them between their beaks. But this humour is peculiarly abundant in aquatic birds. Their skin even imbibes it, and thence acquires a rancid flavour ; and it insinuates itself through the entire plumage. From this it occurs that these birds, though perpetually immersed in the water, are never washed by it, the liquid rolling over them without moistening their plumage, even though they seem desirous of it.

LESSON 9.—*The Esquimaux Dog.*

The Esquimaux, a race of people inhabiting the most northerly parts of the American continent and the adjoining islands, are dependent upon the services of this faithful species of dog for most of the few comforts of their lives ; for assistance in the chase, for carrying burdens, and for their rapid and certain conveyance over the trackless snows of their dreary plains. The dogs, subjected to a constant dependence upon their masters, receiving scanty food and abundant chastisement, assist them in hunting the seal, the reindeer, and the bear. In the summer, a single dog carries a weight of thirty pounds, in attending his master in the pursuit of game : in winter, yoked in numbers to heavy sledges, they drag five or six persons at the rate of seven or eight miles an hour, and will perform journeys of sixty miles a day. What the reindeer is to the Laplander, this dog is to the Esquimaux. He is a faithful slave, who grumbles but does not rebel ; whose endurance never tires ; and whose fidelity is never shaken by blows and starv-

ing. These animals are obstinate in their nature : but the women, who treat them with more kindness than the men, and who nurse them in their helpless state or when they are sick, have an unbounded command over their affections ; and can thus catch them at any time, and entice them from their huts, to yoke them to the sledges, even when they are suffering the severest hunger, and have no resource but to eat the most tough and filthy remains of animal matter which they can espy on their laborious journeys.

The mode in which the Esquimaux dogs are employed in drawing the sledge is described in a very striking manner by Captain Parry, in his "Journal of a second voyage for the discovery of a northwest passage." We should diminish the value of the narrative were we to abridge it.

"When drawing a sledge, the dogs have a simple harness (annoo) of deer or seal-skin, going round the neck by one bight, and another for each of the fore legs, with a single thong leading over the back, and attached to the sledge as a trace. Though they appear at first sight to be huddled together without regard to regularity, there is in fact considerable attention paid to their arrangement, particularly in the selection of a dog of peculiar spirit and sagacity, who is allowed, by a longer trace, to precede the rest as leader, and to whom, in turning to the right or left, the driver usually addresses himself. This choice is made without regard to age or sex ; and the rest of the dogs take precedency according to their training or sagacity, the least effective being put nearest the sledge. The leader is usually from eighteen to twenty feet from the fore part of the sledge, and the hindmost dog about half that distance ; so that when ten

or twelve are running together, several are nearly abreast of each other. The driver sits quite low, on the fore part of the sledge, with his feet overhanging the snow on one side, and having in his hand a whip, of which the handle, made either of wood, bone, or whalebone, is eighteen inches, and the lash more than as many feet, in length ; the part of the thong next the handle is platted a little way down, to stiffen it and give it a spring, on which much of its use depends ; and that which composes the lash is chewed by the women, to make it flexible in frosty weather. The men acquire from their youth considerable expertness in the use of this whip, the lash of which is left to trail along the ground by the side of the sledge, and with which they can inflict a very severe blow on any dog at pleasure. Though the dogs are kept in training entirely by fear of the whip, and indeed without it would soon have their own way, its immediate effect is always detrimental to the draught of the sledge ; for not only does the individual that is struck draw back and slacken his trace, but generally turns upon his next neighbour, and this passing on to the next occasions a general divergency, accompanied by the usual yelping and showing of the teeth. The dogs then come together again by degrees, and the draught of the sledge is accelerated ; but even at the best of times, by this rude mode of draught, the traces of one third of the dogs form an angle of thirty or forty degrees on each side of the direction in which the sledge is advancing. Another great inconvenience attending the Esquimaux method of putting the dogs to, besides that of not employing their strength to the best advantage, is the constant entanglement of the traces by the dogs repeatedly doubling under from side to side to avoid the whip ; so that after

running a few miles the traces always require to be taken off and cleared.

“ In directing the sledge, the whip acts no very essential part, the driver for this purpose using certain words, as the carters do with us, to make the dogs turn more to the right or left. To these a good leader attends with admirable precision, especially if his own name be repeated at the same time, looking behind over his shoulder with great earnestness, as if listening to the directions of the driver. On a beaten track, or even where a single foot or sledge-mark is occasionally discernible, there is not the slightest trouble in guiding the dogs ; for even in the darkest night, and in the heaviest snow drift, there is little or no danger of their losing the road, the leader keeping his nose near the ground, and directing the rest with wonderful sagacity. Where however there is no beaten track, the best driver among them makes a terrible circuitous course, as all the Esquimaux roads plainly show ; this generally occupying an extent of six miles, when with a horse and sledge the journey would scarcely have amounted to five. On rough ground, as among hummocks of ice, the sledge would be frequently overturned, and altogether stopped, if the driver did not repeatedly get off, and by lifting or drawing it to one side steer clear of those accidents. At all times indeed, except on a smooth and well-made road, he is pretty constantly employed thus with his feet, which, together with his never-ceasing vociferations and frequent use of the whip, renders the driving of one of these vehicles by no means a pleasant or easy task. When the driver wishes to stop the sledge, he calls out ‘ Wo, woa,’ exactly as our carters do ; but the attention paid to this command depends altogether on his ability

to enforce it. If the weight is small, and the journey homeward, the dogs are not to be thus delayed ; the driver is therefore obliged to dig his heels into the snow to obstruct their progress, and having thus succeeded in stopping them, he stands up with one leg before the foremost cross-piece of the sledge, till by means of laying the whip gently over each dog's head he has made them all lie down. He then takes care not to quit his position, so that, should the dogs set off, he is thrown upon the sledge instead of being left behind by them.

“ With heavy loads the dogs draw best with one of their own people, especially a woman, walking a little way ahead ; and in this case they are sometimes enticed to mend their pace by holding a mitten to the mouth, and then making the motion of cutting it with a knife, and throwing it on the snow, when the dogs mistaking it for meat hasten forward to pick it up. The women also entice them from the huts in a similar manner. The rate at which they travel depends of course on the weight they have to draw and the road on which their journey is performed. When the latter is level and very hard and smooth, constituting what in other parts of North America is called ‘good sleighing,’ six or seven dogs will draw from eight to ten hundredweight, at the rate of seven or eight miles an hour, for several hours together ; and will easily under these circumstances perform a journey of fifty or sixty miles a day. On untrodden snow, five-and-twenty or thirty miles would be a good day's journey. The same number of well-fed dogs, with a weight of only five or six hundred pounds, (that of the sledge included,) are almost unmanageable, and will on a smooth road run any way they please, at the rate of ten miles an hour. The work

performed by a greater number of dogs however is by no means in proportion to this, owing to the imperfect mode already described of employing the strength of these sturdy creatures, and to the more frequent snarling and fighting occasioned by an increase of numbers."

The dogs of the Esquimaux offer to us a striking example of the great services which the race of dogs has rendered to mankind in the progress of civilization. The inhabitants of the shores of Baffin's bay, and of those still more inclement regions to which our discovery ships have recently penetrated, are perhaps never destined to advance much farther than their present condition in the scale of humanity. Their climate forbids them attempting the gratification of any desires beyond the commonest animal wants. In the short summers they hunt the reindeer for a stock of food and clothing; during the long winter, when the stern demands of hunger drive them from their snow huts to search for provisions, they still find a supply in the reindeer, in the seals which lie in holes under the ice of lakes, and in the bears which prowl about on the frozen shores of the sea. Without the exquisite scent and the undaunted courage of their dogs, the several objects of their chase could never be obtained in sufficient quantities during the winter to supply the wants of the inhabitants; nor could the men be conveyed from place to place over the snow with that celerity which greatly contributes to their success in hunting. In drawing the sledges, if the dogs scent a single reindeer, even a quarter of a mile distant, they gallop off furiously in the direction of the scent; and the animal is soon within reach of the unerring arrow of the hunter. They will discover a seal-hole entirely by the smell, at a very great distance.

Their desire to attack the ferocious bear is so great that the word *nennook*, which signifies that animal, is often used to encourage them when running in a sledge : two or three dogs, led forward by a man, will fasten upon the largest bear without hesitation. They are eager to chase every animal but the wolf ; and of him they appear to have an instinctive terror, which manifests itself on his approach in a loud and long-continued howl. Certainly there is no animal which combines so many properties useful to his master as the dog of the Esquimaux.

LESSON 10.—*The Dog at the Convent of St. Bernard.*

The convent of the great St. Bernard is situated near the top of the mountain known by that name, near one of the most dangerous passages of the Alps, between Switzerland and Savoy. In these regions the traveller is often overtaken by the most severe weather, even after days of cloudless beauty, when the glaciers glitter in the sunshine, and the pink flowers of the rose-tree appear as if they were never to be sullied by the tempest. But a storm suddenly comes on : the roads are rendered impassable by drifts of snow ; the avalanches, which are huge loosened masses of snow or ice, are swept into the valleys, carrying trees and crags of rock before them. The hospitable monks, though their revenue is scanty, open their doors to every stranger who presents himself. To be cold, to be weary, to be benighted, constitute the title to their comfortable shelter, their cheering meal, and their agreeable converse. But their attention to the distressed does not end here. They devote themselves to the dangerous task of searching for those unhappy persons who may have been overtaken by the coming storm, and would perish but for their charitable

succour. Most remarkably are they assisted in these truly Christian offices. They have a breed of noble dogs in their establishment, whose extraordinary sagacity often enables them to rescue the traveller from destruction. Benumbed with cold, weary in search of a lost track, his senses yielding to the stupifying influence of frost which betrays the exhausted sufferer into a deep sleep, the unhappy man sinks upon the ground, and the snow drift covers him from human sight. It is then that the keen scent and the exquisite docility of these admirable dogs are called into action. Though the perishing man lie ten or even twenty feet beneath the snow, the delicacy of smell with which they can trace him offers a chance of escape. They scratch away the snow with their feet; they set up a continued hoarse and solemn bark, which brings the monks and labourers of the convent to their assistance. To provide for the chance that the dogs, without human help, may succeed in discovering the unfortunate traveller, one of them has a flask of spirits round his neck, to which the fainting man may apply for support; and another has a cloak to cover him. These wonderful exertions are often successful; and even where they fail of restoring him who has perished, the dogs discover the body, so that it may be secured for the recognition of friends; and such is the effect of the temperature, that the dead features generally preserve their firmness for the space of two years. One of these noble creatures was decorated with a medal in commemoration of his having saved the lives of twenty-two persons, who but for his sagacity must have perished. Many travellers who have crossed the passage of St. Bernard since the peace have seen this dog, and have heard, around the blazing fire of the monks,

the story of his extraordinary career. He perished about the year 1816, in an attempt to convey a poor traveller to his anxious family. The Piedmontese courier arrived at St. Bernard in a very stormy season, labouring to make his way to the little village of St. Pierre, in the valley beneath the mountain, where his wife and children dwelt. It was in vain that the monks attempted to check his resolution to reach his family. They at last gave him two guides, each of whom was accompanied by a dog, of which one was the remarkable creature whose services had been so valuable to mankind. Descending from the convent, they were in an instant overwhelmed by two avalanches; and the same common destruction awaited the family of the poor courier, who were toiling up the mountain in the hope to obtain some news of their expected friend. They all perished.

A story is told of one of these dogs, who, having found a child unhurt whose mother had been destroyed by an avalanche, induced the poor boy to mount upon his back, and thus carried him to the gate of the convent.

LESSON 11.—*The African Lion.*

“The day was exceedingly pleasant, and not a cloud was to be seen. For a mile or two we travelled along the banks of the river, which in this part abounded in tall mat rushes. The dogs seemed much to enjoy prowling about and examining every bushy place, and at last met with some object among the rushes which caused them to set up a most vehement and determined barking. We explored the spot with caution, as we suspected, from the peculiar tone of their bark, that it was what it proved to be, lions. Having encouraged the dogs to drive them out, a task which they performed with

great willingness, we had a full view of an enormous black-maned lion, and a lioness. The latter was seen only for a minute, as she made her escape up the river, under concealment of the rushes; but the lion came steadily forward, and stood still to look at us. At this moment we felt our situation not free from danger, as the animal seemed preparing to spring upon us, and we were standing on the bank at the distance of only a few yards from him, most of us being on foot and unarmed, without any visible possibility of escaping. I had given up my horse to the hunters, and was on foot myself; but there was no time for fear, and it was useless to attempt avoiding him. I stood well upon my guard, holding my pistols in my hand, with my finger upon the trigger, and those who had muskets kept themselves prepared in the same manner. But at this instant the dogs boldly flew in between us and the lion, and surrounding him, kept him at bay by their violent and resolute barking. The courage of these faithful animals was most admirable; they advanced up to the side of the huge beast, and stood making the greatest clamour in his face, without the least appearance of fear. The lion, conscious of his strength, remained unmoved at their noisy attempts, and kept his head turned towards us. At one moment the dogs, perceiving his eyes thus engaged, had advanced close to his feet, and seemed as if they would actually seize hold of him, but they paid dearly for their imprudence, for, without discomposing the majestic and steady attitude in which he stood fixed, he merely moved his paw, and at the next instant I beheld two lying dead. In doing this he made so little exertion that it was scarcely perceptible by what means they had been killed. Of the time which we had gained by the

interference of the dogs, not a moment was lost ; we fired upon him ; one of the balls went through his side just between the short ribs, and the blood immediately began to flow, but the animal still remained standing in the same position. We had now no doubt that he would spring upon us ; every gun was instantly reloaded, but happily we were mistaken, and were not sorry to see him move quietly away ; though I had hoped in a few minutes to have been enabled to take hold of his paw without danger.

“This was considered by our party to be a lion of the largest size, and seemed, as I measured him by comparison with the dogs, to be, though less bulky, as large as an ox. He was certainly as long in body, though lower in stature ; and his copious mane gave him a truly formidable appearance. He was of that variety which the Hottentots and Boors distinguish by the name of the black lion, on account of the blacker colour of the mane, and which is said to be always larger and more dangerous than the other, which they call the pale lion (*vael leeuw*.) Of the courage of a lion I have no very high opinion ; but of his majestic air and movements, as exhibited by this animal while at liberty in his native plains, I can bear testimony. Notwithstanding the pain of a wound, of which he must soon afterwards have died, he moved slowly away with a stately and measured step.

“At the time when men first adopted the lion as the emblem of courage, it would seem that they regarded great size and strength as indicating it : but they were greatly mistaken in the character they have given to this indolent, skulking animal, and have overlooked a much better example of true courage, and of other virtues also, in the bold and faithful dog.”

LESSON 12.—*The same (continued.)*

In 1705, the Landdrost Jos. Sterreberg Kupt proceeded on a journey into the country to procure some young oxen for the Dutch East India Company; and he has left a very interesting journal of his expedition, which has been translated from the original Dutch, and published by the Rev. Dr. Phillip, in his truly valuable *Researches in South Africa*. The account which the Landdrost gives of the adventure of his company with a lion is altogether so curious that we extract it without abridgment.

“Our wagons, which were obliged to take a circuitous route, arrived at last, and we pitched our tent a musket-shot from the kraal; and after having arranged everything, went to rest, but were soon disturbed; for about midnight the cattle and horses, which were standing between the wagons, began to start and run, and one of the drivers to shout, on which every one ran out of the tent with his gun. About thirty paces from the tent stood a lion, which on seeing us walked very deliberately about thirty paces farther, behind a small thorn-bush, carrying something with him, which I took to be a young ox. We fired more than sixty shots at that bush, and pierced it stoutly, without perceiving any movement. The southeast wind blew strong, the sky was clear, and the moon shone very bright, so that we could perceive everything at that distance. After the cattle had been quieted again, and I had looked over everything, I missed the sentry from before the tent, Jan Smith, from Antwerp, belonging to the Groene Kloof. We called as loudly as possible, but in vain, nobody answered; from which I concluded that the lion had carried him off. Three or four men then advanced

very cautiously to the bush, which stood right opposite the door of the tent, to see if they could discover anything of the man ; but returned helter-skelter, for the lion, who was there still, rose up and began to roar. They found there the musket of the sentry, which was cocked, and also his cap and shoes.

“ We fired again about a hundred shots at the bush, (which was sixty paces from the tent, and only thirty paces from the wagons, and at which we were able to point as at a target,) without perceiving anything of the lion, from which we concluded that he was killed or had run away. This induced the marksman, Jan Stamansz, to go and see if he was there still or not, taking with him a firebrand. But as soon as he approached the bush, the lion roared terribly and leapt at him ; on which he threw the firebrand at him ; and the other people having fired about ten shots, he retired directly to his former place behind that bush.

“ The firebrand which he had thrown at the lion had fallen in the midst of the bush, and favoured by the strong southeast wind, it began to burn with a great flame, so that we could see very clearly into and through it. We continued our firing into it ; the night passed away, and the day began to break, which animated every one to aim at the lion, because he could not go from thence without exposing himself entirely, as the bush stood directly against a steep kloof. Seven men posted on the farthest wagons watched him, to take aim at him if he should come out.

“ At last, before it became quite light, he walked up the hill with the man in his mouth, when about forty shots were fired at him without hitting him, although some were very near. Every time this happened he

turned round towards the tent, and came roaring towards us; and I am of opinion, that if he had been hit he would have rushed on the people and the tent.

“ When it became broad daylight, we perceived, by the blood and a piece of the clothes of the man, that the lion had taken him away and carried him with him. We also found behind the bush, the place where the lion had been keeping the man, and it appeared impossible that no ball should have hit him, as we found in that place several balls beaten flat. We concluded that he was wounded and not far from this. The people therefore requested permission to go in search of the man’s corpse in order to bury it, supposing that, by our continual firing, the lion would not have had time to devour much of it. I gave permission to some, on condition that they should take a good party of armed Hottentots with them, and made them promise that they would not run into danger, but keep a good look out, and be circumspect. On this seven of them, assisted by thirty-three armed Hottentots, followed the track, and found the lion about half a league farther on, lying behind a little bush. On the shout of the Hottentots, he sprang up and ran away, on which they all pursued him. At last the beast turned round, and rushed, roaring terribly, amongst the crowd. The people, fatigued and out of breath with their running, fired and missed him, on which he made directly towards them. The captain, or chief head of the kraal, here did a brave act in aid of two of the people whom the lion attacked. The gun of one of them missed fire, and the other missed his aim, on which the captain threw himself between the lion and the people so close, that the lion struck his claws into the caross (mantle) of the Hottentot. But he was too agile for him, doffed his

caross, and stabbed him with an assagai. Instantly the other Hottentots hastened on, and adorned him with their assagais so that he looked like a porcupine. Notwithstanding this, he did not leave off roaring and leaping, and bitingsomeoftheassagais,tillthemarksmanJanStamansz fired a ball into his eye, which made him turn over, and he was then shot dead by the other people. He was a tremendously large beast, and had but a short time before carried off a Hottentot from the kraal and devoured him."

CHAPTER VI.

MISCELLANEOUS PIECES.

LESSON 1.—*On Ventilation and Household Cleanliness.*

WE are all thoroughly aware of the necessity of breathing ; and the agreeable freshness and reviving influence of the pure morning air must convince us that the breathing of a pure atmosphere is conducive to health ; yet we as carefully exclude the air from our houses as if its approach were noxious. Intending to shut out the inclemencies of the weather only, in our care to guard ourselves from the external air, we hinder that renewal of the atmosphere which is necessary to prevent its becoming stagnant and unfit to support animal life.

Few persons are aware how very necessary a thorough ventilation is to the preservation of health. We preserve life without food for a considerable time, but keep us without air for a very few minutes and we cease to exist. It is not enough that we have air, we must have fresh air ; for the principle by which life is supported is taken from the air during the act of breathing. One fourth only of

the atmosphere is capable of supporting life ; the remainder serves to dilute the pure vital air, and render it more fit to be respired. A full grown man takes into his lungs nearly a pint of air each time he breathes ; and when at rest he makes about twenty inspirations in a minute. In the lungs, by an appropriate apparatus, the air is exposed to the action of the blood, which changes its purer part, the vital air, (Oxygen gas,) into fixed air, (Carbonic acid gas,) which is not only unfit to support animal life, but is absolutely destructive of it. An admirable provision of the great Author of nature is here visible, to prevent this exhausted and now poisonous air from being breathed a second time :—while in the lungs, the air receives so much heat as makes it specifically lighter than the pure atmosphere ; it consequently rises above our heads during the short pause between throwing out the breath and drawing it in again, and thus secures to us a pure draught. By the care we take to shut out the external air from our houses, we prevent the escape of the deteriorated air, and condemn ourselves to breathe again and again the same contaminated unrefreshing atmosphere.

Who that has ever felt the refreshing effects of the morning air can wonder at the lassitude and disease that follow the continued breathing of the pestiferous atmosphere of crowded or ill-ventilated apartments ? It is only necessary to observe the countenance of those who inhabit close rooms and houses, the squalid hue of their skins, their sunken eyes, and their languid movements, to be sensible of the bad effects of shutting out the external air. X

Besides the contamination of the air from being breathed, there are other matters which tend to depre-

ciate its purity ; these are the effluvia constantly passing off from the surface of animal bodies, and the combustion of candles and other burning substances. On going into a bedroom in a morning, soon after the occupant has left his bed, though he be in perfect health, and habitually cleanly in his person, the sense of smelling never fails to be offended with the odour of animal effluvia with which the atmosphere is charged. There is another case perhaps still more striking, when a person fresh from the morning air enters a coach in which several persons have been close stowed during a long night. He who has once made the experiment will never voluntarily repeat it. The simple expedient of keeping down both windows but a single half inch would prevent many of the colds and even fevers which this injurious mode of travelling often produces. Outside passengers, though they may suffer a little more from cold and wet, generally escape these everyday complaints of those who pay double their fare. If under such circumstances the air is vitiated, how much more injuriously must its quality be depreciated when several persons are confined to one room, where there is an utter neglect of cleanliness ; in which cooking, washing, and all other domestic affairs are necessarily performed ; where the windows are immovable, and the door is never opened but while some one is passing through it ! On entering such a den of filth, the nose is saluted by a stench so horrible, as to make any person unused to it recoil and pause before he ventures in ; but the wretched inhabitant has his sense of smelling so blunted that he does not perceive that with every breath he takes he inhales a poison which is sapping the vigour of his body, and destroying the energies of his mind.

This is the condition of too many of our poorer neighbours in town and country. Can we wonder that, with such absolute neglect, all the diseases of persons so situated should be of a dangerous character? or that the mind should be dispirited, and that the man should fly to drams for relief from the burthen which he finds to be weighing him down?

It may be taken as a wholesome general rule, that whatever produces a disagreeable impression on the sense of smelling is unfavourable to health. That sense was doubtless intended to guard us against the dangers to which we are liable from vitiation of the atmosphere. If we have by the same means as high sense of gratification from other objects, it ought to excite our admiration of the beneficence of the Deity in thus making our senses serve the double purpose of affording us pleasure and security; for the latter end might just as effectually have been answered by our being only susceptible of painful impressions.

To keep the atmosphere of our houses free from contamination, it is not sufficient that we secure a frequent renewal of the air. All matters which can injure its purity must be carefully removed. The linen of beds should not be allowed to remain unchanged till it has lost all appearance of ever having been white, or of ever having had any acquaintance with the washing-tub. The contents of chamber vessels should not be left in the house an instant, if it be possible, and certainly not in the room of a sick person: every moment they remain they fill the air with a filthy odour which is little less than poisonous to all who breathe it.

Those who have but one apartment, in which they must of necessity perform all the domestic duties, should

be careful to remove all matters that are offensive to the smell, as cabbage-water, dirty soap-suds, &c. : they should indeed if possible avoid washing in the room they live in. For the same reason, drying clothes in doors should be avoided.

Flowers in water and living plants in pots greatly injure the purity of the air during the night, by giving out large quantities of an air (carbonic acid) similar to that which is separated from the lungs, the breathing of which, as before stated, is highly noxious. On this account they should never be kept in bedrooms : there are instances of persons who have incautiously gone to sleep in a close room, in which there has been a large growing plant, having been found dead in the morning, as effectually suffocated as if there had been a charcoal stove in the room.

A constant renewal of the air is absolutely necessary to its purity : for in all situations it is ~~suffering~~ either by its vital part being absorbed, or by impure vapours being disengaged and dispersed through it. Ventilation therefore resolves itself into the securing a constant supply of fresh air.

In the construction of houses, especially in those built for the poor, this great object has been too generally overlooked, when, by a little contrivance in the arrangement of windows and doors, a current of air might at any time be made to pervade every room of a house of any dimensions. Rooms cannot be well ventilated that have no outlet for the air ; for this reason there should be a chimney to every apartment. The windows should be capable of being opened, and they should, if possible, be situated on the side of the room opposite to and furthest from the fireplace, that the air may traverse

the whole space of the apartment in its way to the chimney.

Fireplaces in bedrooms should not be stopped up with chimney-boards. The windows should be thrown open for some hours every day, to carry off the animal effluvia which are necessarily separating from the bed-clothes, and which should be assisted in their escape by the bed being shaken up and the clothes spread abroad, in which state they should remain as long as possible; this is the reverse of the usual practice of making the bed, as it is called, in the morning, and tucking it up close, as if with the determination of preventing any purification from taking place. Attention to this direction, with regard to airing the bed-clothes and bed after being slept in, is of the greatest importance to persons of weak health. Instances have been known in which restlessness and an inability to find refreshment from sleep would come on in such individuals when the linen of their beds had been unchanged for eight or ten days. In one case of a gentleman of a very irritable habit, who suffered from excessive perspiration during the night, and who had taken much medicine without relief, it was observed that, for two or three nights after he had fresh sheets put upon his bed, he had no sweating; and that after that time he never awoke but he was literally swimming, and the sweat seemed to increase with the length of time he slept in the same sheets. By not permitting him to sleep in the same sheets or night-clothes more than twice without their being washed, he instantly lost this debilitating affection.

Various means are had recourse to at times, with the intention of correcting disagreeable smells, and of purifying the air of sick-rooms. Diffusing the vapour of vine-

gar through the air by plunging a hot poker into a vessel containing it, burning aromatic vegetables, smoking tobacco, and exploding gunpowder, are the means usually employed. All these are useless. The explosion of gunpowder may indeed do something, by displacing the air within the reach of its influence; but then unfortunately an air is produced by its combustion, that is as offensive, and equally unfit to support life, as any air it can be used to remove. These expedients only serve to disguise the really offensive condition of the atmosphere. The only certain means of purifying the air of a chamber which is actually occupied by a sick person, is by changing it in such a manner that the patient shall not be directly exposed to the draughts or currents.

Chemistry has furnished the means of purifying the air of chambers in which persons have been confined with contagious diseases, so as to destroy the noxious power of the effluvia generated in such situations, and thus of preventing the disease from extending. This will be accomplished by attending carefully to the following directions.

Close all the windows and doors of the room intended to be purified, except the one by which you propose to retreat, and make up the aperture of the chimney or fireplace, except for about an inch or two at the bottom. Having put three table-spoonsful of common salt (muriate of soda), rubbed fine, into a shallow dish, place it upon the floor of the apartment,—if with a few hot cinders beneath it, the better; and then pour at once upon the salt a quarter of a pint of strong oil of vitriol (sulphuric acid); retire, and close the room for forty-eight hours. Immediately the acid is poured upon the salt a pungent vapour (chlorine) is given out freely, which

is extremely unpleasant to breathe, and very destructive to most metallic surfaces. It is on this account that the operator should leave the apartment quickly, and that all the iron and brass furniture should be previously removed. This vapour continues forming for many hours, and diffusing itself completely through all parts of the room, effectually destroys the matter on which infection depends; at the expiration of about forty-eight hours, the room may be entered, the doors and windows thrown open, and a fire made in the chimney, in order that the apartment may be perfectly ventilated. It may then be safely occupied. The above quantity of salt, &c., is quite sufficient for a chamber of the usual size; for a much larger room, double the quantity divided into two vessels should be used. The merely offensive odour of sick-rooms, or of any other apartments, may be readily corrected, by placing in them plates containing the chlorosodic solution of Labarague, which is now well known.

But no fumigation will be of any avail in purifying stagnant air, or air that has been breathed till it has been deprived of its vital part; such air must be driven out, when its place should be immediately supplied by the fresh pure atmosphere. The readiest means of changing the air of an apartment is, by lighting a fire in it, and then throwing open the door and windows: this will set the air in motion, by establishing a current up the chimney. The air which has been altered by being breathed is essential to vegetable life and plants, which aided by the rays of the sun have the power to absorb it, while they themselves at the same time give out pure vital air. This process going on by day, the reverse of that described before as taking place during the night, is continually in operation, so that the purification of the

atmosphere can only be prevented by its being preserved in a stagnant state.

In the country there are other circumstances which require to be attended to, besides cleanliness in the house and the free admission of the air into it at all times. Care ought to be taken that nothing be allowed to exist very near the house that can injure the purity of, or produce humidity in, the atmosphere: heaps of putrefying vegetables, dunghills, pools and ditches of stagnant water, privies and open drains, furnish a constant supply of the exhalations which produce fever. In hot seasons especially every breeze in such neighbourhoods must carry poison with it. These things are much too common before the doors of cottages, and even of larger houses. Those who build houses for the poor would do well to choose situations sufficiently elevated to allow the waste waters to be drained off with facility: without this, they must stagnate and putrefy, to the danger of the health of the inhabitants.

LESSON 2.—*The Nautical Almanac.*

Among the verifications of a practical kind which abound in every department of physics, there are none more imposing than the precise prediction of the greater phenomena of astronomy; none certainly which carry a broader conviction home to every mind from their notoriety and unequivocal character. The prediction of eclipses has accordingly from the earliest ages excited the admiration of mankind, and been one grand instrument by which their allegiance (so to speak) to natural science, and their respect for its professors, have been maintained; and though strangely abused in unenlight-

ened ages by the supernatural pretensions of astrologers, the credence given even to their absurdities shows the force of this kind of evidence on men's minds. The predictions of astronomers are, however, now far too familiar to endanger the just equipoise of our judgment, since even the return of comets, true to their paths and exact to the hour of their appointment, has ceased to amaze, though it must ever delight all who have souls capable of being penetrated by such beautiful instances of accordance between theory and facts. But the age of mere wonder in such things is past, and men prefer being guided and enlightened to being astonished and dazzled. Eclipses, comets, and the like, afford but rare and transient displays of the powers of calculation, and of the certainty of the principles on which it is grounded. A page of "lunar distances" from the Nautical Almanac is worth all the eclipses that have ever happened for inspiring this necessary confidence in the conclusions of science. That a man, by merely measuring the moon's apparent distance from a star with a little portable instrument held in his hand and applied to his eye, even with so unstable a footing as the deck of a ship, shall say positively within five miles where he is, on a boundless ocean, cannot but appear to persons ignorant of physical astronomy an approach to the miraculous. Yet the alternatives of life and death, wealth and ruin, are daily and hourly staked with perfect confidence on these marvellous computations, which might almost seem to have been devised on purpose to show how closely the extremes of speculative refinement and practical utility can be brought to approximate. We have before us an anecdote, communicated to us by a naval officer distinguished for the extent and variety of his attain-

ments, which shows how impressive such results may become in practice. He sailed from San Blas on the west coast of Mexico, and after a voyage of 8000 miles, occupying 89 days, arrived off Rio de Janeiro, having in this interval passed through the Pacific ocean, rounded cape Horn, and crossed the South Atlantic, without making any land, or even seeing a single sail with the exception of an American whaler off cape Horn. Arrived within a week's sail of Rio, he set seriously about determining by lunar observations the precise line of the ship's course, and its situation in it at a determinate moment, and having ascertained this within from five to ten miles, ran the rest of the way by those more ready and compendious methods known to navigators, which can be safely employed for short trips between one known point and another, but which cannot be trusted in long voyages, where the moon is the only sure guide. The rest of the tale we are enabled by his kindness to state in his own words:—"We steered towards Rio de Janeiro for some days after taking the lunars above described, and having arrived within fifteen or twenty miles of the coast, I hove to at four in the morning till the day should break, and then bore up; for, although it was very hazy, we could see before us a couple of miles or so. About eight o'clock it became so foggy that I did not like to stand in farther, and was just bringing the ship to the wind again before sending the people to breakfast, when it suddenly cleared off, and I had the satisfaction of seeing the great Sugar-loaf Rock, which stands on one side of the harbour's mouth, so nearly right ahead that we had not to alter our course above a point in order to hit the entrance of Rio. This was the first land we had seen for three months, after

crossing so many seas and being set backwards and forwards by innumerable currents and foul winds." The effect on all on board might well be conceived to have been electric; and it is needless to remark how essentially the authority of a commanding officer over his crew may be strengthened by the occurrence of such incidents, indicative of a degree of knowledge and consequent power beyond their reach.

LESSON 3.—*Senses.*

There is something exceedingly remarkable in the manner in which loss or diminution of one sense is followed by increase of intensity of others, or rather perhaps by an increased attention to the indications of other senses. Blind persons acquire a wonderful delicacy of touch; in some cases it is said to the extent of distinguishing colours. M. Saunderson, the blind mathematician, could distinguish by his hand, in a series of Roman medals, the true from the counterfeit, with a more unerring discrimination than the eye of a professed virtuoso; and when he was present at the astronomical observations in the garden of his college, he was accustomed to perceive every cloud which passed over the sun. This remarkable power, which has sometimes been referred to an increased intensity of particular senses, in many cases evidently resolves itself into an increased habit of attention to the indications of all those senses which the individual retains. Two instances have been related to me of blind men who were much esteemed as judges of horses. One of these in giving his opinion of a horse declared him to be blind, though this had escaped the observation of several persons who had the use of their eyes, and who were with some difficulty

convinced of it. Being asked to give an account of the principle on which he had decided, he said it was by the sound of the horse's step in walking, which implied a peculiar and unusual caution in his manner of putting down his feet. The other individual, in similar circumstances, pronounced a horse to be blind of one eye, though this had also escaped the observation of those concerned. When he was asked to explain the facts on which he formed his judgment, he said he felt the one eye to be colder than the other. It is related of the late Dr. Moyse, the well-known blind philosopher, that he could distinguish a black dress on his friends by its smell; and there seems to be good evidence that blind persons have acquired the power of distinguishing colours by the touch. In a case of this kind mentioned by Mr. Boyle, the individual stated that black imparted to his sense of touch the greatest degree of asperity, and blue the least. Dr. Rush relates of two blind young men, brothers, of the city of Philadelphia, that they knew when they approached a post in walking across a street, by a peculiar sound which the ground under their feet emitted in the neighbourhood of the post; and that they could tell the names of a number of tame pigeons, with which they amused themselves in a little garden, by only hearing them fly over their heads. I have known several instances of persons affected with that extreme degree of deafness which occurs in the deaf and dumb, who had a peculiar susceptibility to particular kinds of sounds, depending apparently upon an impression communicated to their organs of touch or simple sensation. They could tell, for instance, the approach of a carriage in the street without seeing it, before it was taken notice of by persons who had the use of all

their senses. An analogous fact is observed in the habit acquired by the deaf and dumb of understanding what is said to them by watching the motion of the lips of the speaker. Examples still more wonderful are on record, but certainly require confirmation. A story, for instance, has lately been mentioned in some of the medical journals, of a gentleman in France who lost every sense except the feeling of one side of his face ; yet it is said that his family acquired a method of holding communication with him, by tracing characters upon the part which retained its sensation.

LESSON 4.—*Instances of the Influence of Habit.*

Attention is very much influenced by habit ; and connected with this subject there are some facts of great interest. There is a remarkable law of the system by which actions, at first requiring much attention, are after frequent repetition performed with a much less degree of it, or without the mind being conscious of any effort. This is exemplified in various processes of daily occurrence, as reading and writing, but most remarkably in music. Musical performance at first requires the closest attention : but the effort becomes constantly less, until it is often not perceived at all ; and a lady may be seen running over a piece of music on the piano, and at the same time talking on another subject. A young lady mentioned by Dr. Darwin executed a long and very difficult piece of music with the utmost precision under the eye of her master ; but seemed agitated during the execution of it, and when she had concluded burst into tears. It turned out that her attention had during the whole time been intensely occupied with the agonies of a favourite canary bird, which at last dropt dead in its

cage. We see the same principle exemplified in the rapidity with which an expert arithmetician can run up a long column of figures, without being conscious of the individual combinations. It is illustrated in another manner by the feats of jugglers, the deception produced by which depends upon their performing a certain number of motions with such rapidity that the attention of the spectators does not follow all the combinations.

In teaching such arts as music or arithmetic this principle is also illustrated, for the most expert arithmetician or musical performer is not necessarily, and perhaps not generally, the best teacher of the art; but he who with competent knowledge of it directs his attention to the individual minute combinations through which it is necessary for the learner to advance.

In processes more purely intellectual, we find the influence of habit brought under our view in a similar manner, particularly in following the steps of a process of reasoning. A person little accustomed to such a process advances step by step, with minute attention to each as he proceeds; while another perceives at once the result, with little consciousness of the steps by which he arrived at it. For this reason also it frequently happens that, in certain departments of science, the profound philosopher makes a bad teacher. He proceeds too rapidly for his audience, and without sufficient attention to the intermediate steps by which it is necessary for them to advance; and they may derive much more instruction from an inferior man, whose mental process on the subject approaches more nearly to that which in the first instance must be theirs. We remark the same difference in public speaking and in writing; and we talk of a speaker or a writer who is easily followed, and another

who is followed with difficulty. The former retards the series of his thoughts, so as to bring distinctly before his hearers or his readers every step in the mental process : the latter advances without sufficient attention to this, and consequently can be followed by those only who are sufficiently acquainted with the subject to fill up the intermediate steps, or not to require them.

There is a class of intellectual habits directly the reverse of those now referred to ; namely, habits of inattention, by which the mind, long unaccustomed to have the attention steadily directed to any important object, becomes frivolous and absent, or lost amid its own waking dreams. A mind in this condition becomes incapable of following a train of reasoning, and even of observing facts with accuracy, and tracing their relations. Hence nothing is more opposed to the cultivation of intellectual character ; and when such a person attempts to reason, or to follow out a course of investigation, he falls into slight and partial views, unsound deductions, and frivolous arguments. This state of mind therefore ought to be carefully guarded against in the young ; as, when it is once established, it can be removed only by a long and laborious effort, and after a certain period of life is probably irremediable.

In rude and savage life remarkable examples occur of the effect of habits of minute attention to those circumstances to which the mind is intensely directed, by their relation to the safety or advantage of the observer. The American hunter finds his way in the trackless forests by attention to minute appearances in the trees, which indicate to him the points of the compass. He traces the progress of his enemies or his friends by the marks of their footsteps ; and judges of their numbers, their halt-

ings, their employments, by circumstances which would entirely escape the observation of persons unaccustomed to a mode of life requiring such exercises of attention. Numerous examples of this kind are mentioned by travellers, particularly among the original natives of America.

LESSON 5.—*Influence of Disease on the Attention and Memory.*

A man mentioned by Mr. Abernethy had been born in France, but had spent the greater part of his life in England, and for many years had entirely lost the habit of speaking French : but when under the care of Mr. Abernethy, on account of the effects of an injury of the head, he always spoke French. A similar case occurred in St. Thomas's hospital, of a man who was in a state of stupor in consequence of an injury of the head. On his partial recovery, he spoke a language which nobody in the hospital understood, but which was soon ascertained to be Welsh. It was then discovered that he had been thirty years absent from Wales, and before the accident had entirely forgotten his native language. On his perfect recovery he completely forgot his Welsh again, and recovered the English language. A lady mentioned by Dr. Prichard, when in a state of delirium, spoke a language which nobody about her understood ; but which also was discovered to be Welsh. None of her friends could form any conception of the manner in which she had become acquainted with that language ; but after much inquiry it was discovered, that in her childhood she had a nurse, a native of the district on the coast of Brittany, the dialect of which is closely analogous to the Welsh. The lady had at that time learnt a good deal

of this dialect, but had entirely forgotten it for many years before this attack of fever. The case has also been communicated to me of a lady who was a native of Germany, but married to an English gentleman, and for a considerable time accustomed to speak the English language. During an illness, of the nature of which I am not informed, she always spoke German, and could not make herself understood by her English attendants, except when her husband acted as interpreter.

A case has been related to me of a boy who at the age of four received a fracture of the skull, for which he underwent the operation of trepan. He was at the time in a state of perfect stupor, and after his recovery retained no recollection either of the accident or the operation. At the age of fifteen, during the delirium of a fever, he gave his mother a correct description of the operation, and the persons who were present at it, with their dress, and other minute particulars. He had never been observed to allude to it before, and no means were known by which he could have acquired the circumstances which he mentioned. An eminent medical friend informs me, that during fever, without any delirium, he on one occasion repeated long passages from Homer, which he could not do when in health; and another friend has mentioned to me that in a similar situation there was represented to his mind, in a most vivid manner, the circumstances of a journey in the Highlands, which he had performed long before, including many minute particulars which he had entirely forgotten.

In regard to the memory of languages as influenced by these affections of the brain, a condition occurs, the reverse of that now mentioned, and presenting some singular phenomena: the cause of the difference is en-

tirely beyond our researches. The late Dr. Gregory was accustomed to mention in his lectures the case of a clergyman, who while labouring under a disease of the brain spoke nothing but Hebrew, which was ascertained to be the last language that he had acquired. An English lady, mentioned by Dr. Prichard, in recovering from an apoplectic attack, always spoke to her attendants in French, and had actually lost the knowledge of the English language. She continued about a month.

A gentleman whom I attended in a state of perfect apoplexy, from which he did not recover, was frequently observed to adjust his nightcap with the utmost care, when it got into an uncomfortable state ; first pulling it down over his eyes, and then turning up the front of it in the most exact manner. Another, whom I saw lately in a state of profound apoplexy, but from which he recovered, had a perfect recollection of what took place during the attack, and mentioned many things which had been said in his hearing, when he was supposed to be in a state of perfect unconsciousness. A lady, on recovering from a similar state, said she had been asleep and dreaming, and mentioned what she had dreamt about. Facts are wanting on this curious subject ; but there can be little doubt that many of the stories related of things seen by persons in a state of trance are referable to this head, and that their visions consisted of the conceptions of the mind itself, believed for the time to be real, in a manner analogous to dreaming. That such impressions should not be more frequently remembered, in the ordinary cases of stupor, probably arises from the higher degree and greater permanency of the affection than that which occurs in sleep. For we have reason to believe that dreams which are remembered occur only in imper-

fect sleep, and that in very profound sleep we do not remember any mental impressions, though we have satisfactory proof that they exist. Thus, a person will talk in his sleep so as to be distinctly understood by another, but without having the least recollection of the mental impression which led to what he said.

In the preceding observations we have referred chiefly to the temporary influence of disease in impairing or suspending the powers of attention and memory. But there is a part of the subject quite distinct from this, namely, the effect of certain diseases in obliterating impressions formerly received and long retained. The higher degrees of this condition amount to that state which we call idiotism, and this we find supervening both upon affections of the brain and protracted febrile diseases. The condition so produced is sometimes permanent, but frequently is recovered from; and recovery takes place in some cases gradually, in others very suddenly. A man mentioned by Willis, on recovering from a putrid fever, was found to have so entirely lost his mental faculties that he knew nobody, remembered nothing, and understood nothing: "*vix supra brutum saperet.*" He continued in this state for two months, and then gradually recovered. Some years ago I attended a young man, who on recovering from a tedious fever was found to be in a state bordering upon idiotism; and this continued even after his bodily health was entirely restored. In this state he was taken to the country, where he gradually recovered after several months. A gentleman mentioned by Wepfer, on coming out of an apoplectic attack, was found to know nobody, and remember nothing. After several weeks he began to know his friends, to remember words, to repeat the Lord's prayer, and to read a few words of Latin, ra-

ther than German, which was his own language. When urged to read more than a few words at a time, he said that he formerly understood these things, but now did not. After some time he began to pay more attention to what was passing around him ; but while thus making slight and gradual progress, he was after a few months suddenly cut off by an attack of apoplexy.

The sudden recoveries from this condition of the mental powers are still more remarkable. Dr. Prichard, on the authority of the late Dr. Rush of Philadelphia, mentions an American student, a person of considerable attainments, who on recovering from a fever was found to have lost all his acquired knowledge. When his health was restored he began to apply to the Latin grammar ; had passed through the elementary parts, and was beginning to construe, when one day, in making a strong effort to recollect a part of his lesson, the whole of his lost impressions suddenly returned to his mind, and he found himself at once in possession of all his former acquirements.

In slighter injuries of the head, accompanied by loss of recollection, we observe the circumstances gradually recalled in a very singular manner. Some years ago I saw a boy who had fallen from a wall, and struck his head against a stone which lay at the foot of it. He was carried home in a state of insensibility, from which he soon recovered, but without any recollection of the accident. He felt that his head was hurt, but he had no idea how he had received the injury. After a short time he recollected that he had struck his head against a stone, but had no recollection how he had come to do so. After another interval he recollected that he had been on the top of a wall, and had fallen from it and struck against

the stone, but could not remember where the wall was. After some time longer he recovered the recollection of all the circumstances. Dr. Prichard mentions a gentleman who suffered a severe injury by a fall from his horse, and who on his recovery had no recollection of anything relating to the accident, or for some time before it. A considerable time elapsed before his recollection of it began to return, and it was only as he repeatedly rode over the country where the accident had happened, that the sight of the various objects gradually recalled the circumstances of the journey in which it occurred, and of the accident itself.

A still more remarkable phenomenon connected with cases of this kind, occurs in some instances in which there is perfect intelligence in regard to recent circumstances, but an obliteration of former impressions. Of this I have received the following striking example from an eminent medical friend. A respectable surgeon was thrown from his horse while riding in the country, and was carried into an adjoining house in a state of insensibility. From this he very soon recovered, described the accident distinctly, and gave minute directions in regard to his own treatment. In particular he requested that he might be immediately bled; the bleeding was repeated at his own desire after two hours; and he conversed correctly regarding his feelings and the state of his pulse with the medical man who visited him. In the evening he was so much recovered as to be able to be removed to his own house, and a medical friend accompanied him in the carriage. As they drew near home, the latter made some observation respecting precautions calculated to prevent unnecessary alarm to the wife and family of the patient,

when to his astonishment he discovered that his friend had lost all idea of having either a wife or children. This condition continued during the following day ; and it was only on the third day, and after farther bleeding, that the circumstances of his past life began to recur to his mind.

On the other hand, remarkable instances occur of the permanency of impressions made upon the mind previously to such injuries, though the mental faculties are entirely obscured as to all subsequent impressions. An affecting example is mentioned by Dr. Conolly : a young clergyman, when on the point of being married, suffered an injury of the head*by which his understanding was entirely and permanently deranged. He lived in this condition to the age of eighty ; and to the last talked of nothing but his approaching wedding, and expressed impatience for the arrival of the happy day.

It is chiefly in connection with attacks of an apoplectic nature, that we meet with singular examples of loss of memory on particular topics, or extending only to a particular period. One of the most common is loss of the memory of words, or of names, while the patient retains a correct idea of things and persons. The late Dr. Gregory used to mention a lady, who after an apoplectic attack recovered correctly her ideas of things, but could not name them. In giving directions respecting family matters, she was quite distinct as to what she wished to be done, but could make herself understood only by going through the house, and pointing to the various articles. A gentleman whom I attended some years ago, after recovering from an apoplectic attack, knew his friends perfectly, but could not name them. Walking one day in the street, he met a gentleman to

whom he was very anxious to communicate something respecting a mutual friend. After various ineffectual attempts to make him understand whom he meant, he at last seized him by the arm, and dragged him through several streets to the house of the gentleman of whom he was speaking, and pointed to the name-plate on the door.

A singular modification of this condition has been related to me. The gentleman to whom it referred could not be made to understand the name of an object if it was spoken to him, but understood it perfectly when it was written. Another frequent modification consists in putting one name for another, but always using the words in the same sense. One gentleman affected in this manner, when he wanted coals put upon his fire, always called for paper, and when he wanted paper, called for coals; and these words he always used in the same manner. In other cases the patient seems to invent names, using words which to a stranger are quite unintelligible; but he always uses them in the same sense, and his immediate attendants come to understand what he means by them.

Another remarkable modification of this condition of the mental powers is found in those cases in which there is loss of the recollection of a particular period. A clergyman mentioned by Dr. Beattie, on recovering from an apoplectic attack, was found to have lost the recollection of exactly four years; everything that occurred before that period he remembered perfectly. He gradually recovered, partly by a spontaneous revival of his memory, and partly by acquiring a knowledge of the leading events of the period. A young lady who was present at a late catastrophe in Scotland, in which many

people lost their lives by the fall of the gallery of a church, escaped without any injury, but with the complete loss of the recollection of any of the circumstances ; and this extended not only to the accident, but to everything that had occurred to her for a certain time before going to church. A lady whom I attended some years ago in a protracted illness, in which her memory became much impaired, lost the recollection of a period of about ten or twelve years, but spoke with perfect consistency of things as they stood before that time.

As far as I have been able to trace it, the principle in such cases seems to be, that, when the memory is impaired to a certain degree, the loss of it extends backwards to some event or some period by which a particularly deep impression had been made upon the mind. In the lady last mentioned, for instance, the period of which she lost the recollection was that during which she had resided in Edinburgh, and it extended back to her removal from another city in which she had lived for many years. During her residence in the latter she had become the mother of a large family, and other events had occurred likely to make a deep impression on her mind. The period of her residence in Edinburgh had been uniform and tranquil, and without any occurrence calculated to excite much attention in a person of rather slender mental endowments. I do not know whether we can give a similar explanation of cases in which the loss of memory has extended only to particular subjects ; namely, by supposing that these subjects had been more slightly impressed upon the mind than those which were retained. A gentleman is mentioned by Dr. Beattie, who after a blow on the head lost his knowledge of Greek, and did not appear to have lost anything else.

LESSON 6.—*Sugar.*

Sugar must be considered as one of the most valuable vegetable substances with which civilized man has become acquainted. So varied and extensive are its uses, and so greatly does it minister to the social gratifications of mankind, that we are justified in ranking it as inferior only in the vegetable economy to the cereal grains.

Sugar, speaking chemically, is included in, or forms a constituent part of, a very numerous range of plants, being either contained ready formed, or capable of being developed in all that will yield alcohol after fermentation and distillation. Among these vegetable bodies there are several from which, at various times and in different countries, sugar has been drawn as an alimentary substance; but of these it is quite impossible for us here to offer any satisfactory description. We must limit ourselves to a very short notice of that one among the sugar-producing plants which furnishes our own tables with this indispensable article of daily consumption; and to a few particulars relating to the manufacture of sugar in France from the white beet.

The sugarcane (*Saccharum officinarum*) must be considered as a native of China, since it has been pretty accurately shown that its cultivation was prosecuted in that empire for two thousand years before sugar was even known in Europe, and for a very long period before other eastern nations became acquainted with its use. For some time after the substance in its crystalline form had found its way to the westward through India and Arabia, a singular degree of ignorance prevailed in regard to its nature and the mode of its production; and there is reason for believing that the Chinese, who have always evinced an unconquerable repugnance to foreign

intercourse, purposely threw a veil of mystery over the subject. Persons have not been wanting even in modern times who have approved of this anti-social spirit, as being the perfection of political wisdom ; but is it not a complete answer to their opinion, that every nation which has cultivated commercial relations has been steadily advancing in civilization and adding most importantly to the sum of its comforts and conveniences ; while the inhabitants of China, although possessed of the greatest natural advantages, arising from variety of soil and climate, and whereby they had so long ago placed themselves in advance of other people, have remained altogether stationary ?* The case of this extraordinary people forms altogether and in many ways a standing enigma in the history of our species, the solving of which could not fail to prove highly instructive and interesting.

A knowledge of the origin of cane sugar was correctly revealed in the middle of the thirteenth century by the celebrated traveller Marco Polo : though it was partially known much earlier. The plant was soon conveyed to Arabia, Nubia, Egypt, and Ethiopia, where it became extensively cultivated. Early in the fifteenth century the sugarcane first appeared in Europe. Sicily took the lead in its cultivation ; thence it passed to Spain, Madeira, and the Canary islands ; and shortly after the discovery of the new world by Columbus this plant was conveyed to Hayti and Brazil, from which latter country it gradually spread through the islands of the West Indies.

The canes have knotty stalks, and at each joint or knot a leaf is produced. The number of joints varies in different specimens, some having as many as eighty, and others not half that number. There are now several

varieties cultivated in the American colonies, which were conveyed to that quarter about the end of the last century, from the islands of Bourbon, Java, and Otaheite. These are so far superior to the old plant that its cultivation has nearly ceased. The new varieties are larger in diameter, have a much greater distance between the joints, and come sooner to maturity than the old Brazil cane. This occupies, from the time of its being planted until it is fit for being cut, a period of from twelve to twenty months: while the larger varieties by which it has been superseded are fully ripe in ten months.

The sugarcane varies exceedingly in its growth, depending upon the nature of the soil. In new and moist land it sometimes attains the height of twenty feet; while in ground that is arid and calcareous its length does not exceed from six to ten feet. It is always propagated from cuttings. When sown in the colonies of America the seeds have never been known to vegetate; and although there must doubtless be some country where the course of nature could be followed in this respect, we are not acquainted with any place in which the cultivators resort to the sowing of seed in order to the propagation of the plant. The top joints are always taken for planting, because they are less rich in saccharine juice than the lower parts of the cane, while their power of vegetation is equally strong. The cane-plant is possessed of the power of tellering in a manner similar to that shown by wheat, although not to an equal extent.

In preparing a field for planting with the cuttings of cane, the ground is marked out in rows three or four feet apart, and in these lines holes are dug from eight to twelve inches deep, and with an interval of two feet between the holes. Where the ground is level, larger

spaces are left at certain intervals for the facility of carting ; but there are many situations at the sides of steep hills where no cart can be taken, and in such cases these spaces are not required. The ripe canes are then conveyed to the mill in bundles on the backs of mules, or are passed down to the bottom of the hill through wooden spouts.

The hoeing of a cane-field is a most laborious operation when performed, as it must be, under the rays of a tropical sun. Formerly this task was always effected by hand labour, but of late years, where the nature of the ground will admit of the employment of a plough, that instrument has been substituted, to the mutual advantage of the planter and his labourers. The planting of canes does not require to be renewed annually ; in such a case the utmost number of labourers now employed on a sugar-plantation would be wholly inadequate to its performance. The most general plan is for a certain portion of the land in cultivation to be planted annually and in succession, the roots and stoles of the canes of the former year being left through the remaining parts of the plantation. From these fresh canes, which are called ratoon, spring up, and are nearly as large the first year as plant-canes. Ratoon-canes have a tendency to deteriorate, at least in size, every year they are continued ; for which reason the progressive renewal of the plants is adopted. This plan may however be continued with very good effect for several years, provided the roots are furnished every year with a liberal supply of manure, that the ground about them is well loosened, and that all weeds are carefully removed. In this way it is said the same roots have been made to send up canes during twenty years. In some few cases the planters adopt a

different course, and never wholly renew any individual field of canes, but content themselves with supplying new cuttings in such particular spots as from time to time appear to be thin.

The mode of cultivation varies in some particulars in different countries. In India, where the price paid for daily labour is exceedingly small, great pains are taken in preparing the ground for the reception of the plants, which are carefully weeded and watered, and freed from insects, at all periods of their growth when such operations are called for. Unfortunately for the Indian sugar cultivator, something more than mere labour is required for the proper manufacture of his produce,—an acquaintance with chemical science, and the possession of adequate apparatus,—in both which particulars he is lamentably deficient. The Indian agriculturist would suffer martyrdom rather than be guilty of the crime of innovation; the discoveries of scientific men are to him as though they never had been made, and in conducting processes he is contented with apparatus the total cost of which does not exceed many shillings, where manufacturers of other countries think it necessary to expend many hundred pounds. If their inveterate prejudices could be overcome, and the Indian sugar-planters were furnished with adequate utensils, there is every reason to believe that the markets of Europe could be supplied thence with sugar of a quality quite equal to that of West India manufacture, and at a considerably lower cost.

The manufacture of sugar is a somewhat complicated process, requiring for its successful performance not only some degree of chemical knowledge, but likewise a considerable amount of practical experience. We must con-

tent ourselves here with giving the merest outline of the operations, referring the reader who is curious in such matters to books wherein the whole details are given.

When the canes are fully ripe they are cut close to the stole, and being then divided into convenient lengths, are tied up in bundles and conveyed to the mill. This always consists of three iron cylinders, sometimes standing perpendicularly in a line with each other, and at other times placed horizontally, and disposed in the form of a triangle, and so adjusted that the canes on being passed twice between the cylinders of either kind of mill shall have all their juice expressed. This is collected in a cistern, and must be immediately placed under process by heat to prevent its becoming acid, an effect which has sometimes commenced as early as twenty minutes from the time of its being expressed. A certain quantity of lime in powder, or of lime-water, is added at this time to promote the separation of the succulent matter contained in the juice; and these being as far as possible removed by a heat just sufficient to cause the impurities to collect together on the surface, the cane liquor is then subjected to a very rapid boiling, in order to evaporate the watery particles, and bring the syrup to such a consistency that it will granulate on cooling. The quantity of sugar obtainable from a given measure of cane juice varies according to the season, the soil, the period of the year, and the quality of the canes; but it may be calculated that, taking one state of circumstances with another in these respects, every five gallons, imperial measure, of cane juice, will yield six pounds of crystallized sugar, and will be obtained from about one hundred and ten well-grown canes.

The fuel used for thus concentrating the juice is fur-

nished by the cane itself, which after the expressing of the juice is dried for the purpose by exposure to the sun.

When the sugar is sufficiently cooled in shallow trays, it is put into the hogshead wherein it is shipped to Europe. These casks have their bottoms pierced with holes, and are placed upright over a large cistern, into which the molasses, which is the portion of saccharine matter that will not crystallize, drains away, leaving the raw sugar in the state wherein we see it in our grocers' shops; the casks are then filled up, headed down, and shipped.

With the planters in our own colonies, the process of sugar-making mostly ends with the draining away of the molasses in the manner just mentioned; but in the French, Spanish, and Portuguese settlements it is usual to submit the raw sugar to the farther process of claying. For this purpose the sugar, as soon as it is cool, is placed in forms or moulds, similar to those used in the sugar-refineries in England, but much larger; and these being placed with their small ends downwards, the top of the sugar is covered with clay moistened to the consistence of thin paste, the water contained in which gradually soaks through the sugar, and washes out a farther quantity of molasses, with which it escapes through a hole purposely made at the point of the earthen mould. It is then called clayed sugar: the loaves when removed from the forms are frequently divided into three portions, which being of different colours and qualities, arising from the greater effect of the water in cleansing the upper portion, are pulverized, and packed separately for exportation.

The molasses which have drained from the sugar, together with all the scummings of the coppers, are collected, and being first fermented, are distilled for the production of rum. The proportionate quantity of this spirit, as

compared with the weight of sugar produced, varies considerably with the seasons and management. In favourable years, when the canes are fully ripened, and the quality of the sugar is good, the proportion of molasses and scummings is comparatively small, and the manufacture of rum is consequently lessened : the proportion usually made is reckoned to be from five to six gallons of proof spirit for every hundredweight of sugar.

LESSON 7.—*Spices.*

The plants which produce the more esteemed of these are all natives of tropical climates ; and with the exception of some of the capsicums, none of them can be fruited in the open air in England, nor can the choicer sorts be brought to maturity even by artificial heat. These substances are either simply hot and acrid, in which case they get the name of peppers ; or they have aromatic flavour in addition ; and when they have this they are called spices, though in some cases the names are applied indiscriminately to the same substance.

Spices have always been regarded as luxurious acquisitions, while their small comparative bulk and consequent facility of transport have caused them to be among the first articles of commerce obtained from remote countries. The inhabitant of more temperate regions has therefore for ages been in the enjoyment of most of the delicious aromatics fostered by a tropical sun.

The higher classes of the Romans used spices in more costly profuseness than the moderns, though the better knowledge of navigation, by producing a direct and frequent intercourse between nations, has now caused them to be sufficiently cheap to place them within the reach of all ranks of society.

Among the ancients, spices of all kinds, as well as frankincense and myrrh, were made to lend their perfume to the wreathed smoke which ascended both from the altars of their gods and the funeral piles of their nobles. Prodigious quantities of frankincense and spices were thus consumed at the funeral of Sylla; and Nero is said to have lavished more than a whole year's supply in celebrating the obsequies of his wife Poppæa. The country of the Sabæans, situated in Arabia Felix, was celebrated for the abundance of these aromatic plants. "Among this people," says Pliny, "no other kinds of wood but those which sent forth sweet odour were used as fuel, and they cooked their food with the branches of trees yielding frankincense and myrrh." The very ocean, it was said, was perfumed with the fragrance of their spices and aromatics. Agatharchidas, an ancient author who wrote about two thousand years ago, gave a glowing description of this country. It is probable that his panegyric suggested to Milton the following simile:

"As when to them who sail

Beyond the Cape of Hope, and now are past

Mozambic, off at sea northeast winds blow

Sabean odours from the spicy shore

Of Araby the blest: with such delay

Well pleased they slack their course, and many a league,

Cheered with the grateful smell, old Ocean smiles."

Although the ancient writers all agree that Arabia Felix has thus obtained its name from its odour-breathing plants, it is probable that their accounts are mostly fabulous, and that being but imperfectly acquainted with the regions beyond, they concluded that the country whence they procured their spicy luxuries must of necessity be the country of production. The spices which the queen of Sheba presented to Solomon were not known

in Jerusalem, and were probably obtained from Ceylon, or the islands still farther to the east. It is however most certain, that with but one or two exceptions, those of familiar use among the moderns were all originally derived from these latter countries.

Cinnamon (*Laurus Cinnamomum*) is said to be indigenous only to the island of Ceylon, and even there confined to a small district in the southwestern part of that island. There are however doubts whether the inferior sorts found in other places, known by the name of cassia, and considered by botanists as a distinct species (*Laurus Cassia*), be not the very same tree, deteriorated by being produced on a soil and in a climate less adapted for the development of its finer qualities. Whether it be cinnamon or cassia, the bark of the tree, freed from the external part, forms the spice.

Although ever since the Dutch first had a settlement in Ceylon cinnamon was made by them a lucrative article of trade, and one which they strove by every means wholly to monopolize, this tree was not made by them an object of cultivation in Ceylon until 1766. Before that period cinnamon was collected in the forests and jungles, since an idea prevailed that its excellence depended on its spontaneous growth, and that if once subjected to culture it would no longer be genuine.

When Falk was appointed governor of Ceylon he felt the inconvenience of depending for a regular supply on such a resource, the more especially as the greater part of the cinnamon-trees lay in the dominions of the king of Candy, who frequently, with or without apparent reason, refused the cinnamon-peelers admission into his dominions, and the Dutch were in consequence often restricted to less than half their required annual exports.

Governor Falk, in his attempt to remedy this evil by cultivating the cinnamon-tree in the territory belonging to the Dutch, was discouraged by the prejudices of the natives, and discountenanced by the parsimony of the supreme government of Batavia. It was said, "for one hundred and fifty years Ceylon had supplied the requisite quantity of cinnamon, the expense of which was ascertained and limited : why then risk the success of a new plan, attended with extraordinary charges." This public-spirited governor nevertheless persevered in his undertaking, and to his success the English owe the flourishing state in which they found the cinnamon plantations of Ceylon when they captured that island. This tree is now cultivated in four or five very large gardens, the extent of which may in some measure be imagined by the quantity of cinnamon annually exported thence, amounting to more than 400,000 lbs. ; and from the number of people who are employed in the cinnamon department, these being from twenty-five to twenty-six thousand persons.

The trade in this produce had always been a monopoly : during the government of the Dutch this was enforced with an excessive degree of rigour, at which humanity revolts. It is painful to contemplate man, when greediness for exclusive gains, the meanest of all motives, incites him to acts of oppression and tyranny. "The selling or giving away the smallest quantity of cinnamon (even were it but a single stick), the exporting of it, the peeling of the bark, extracting the oil either from that or the leaves, or the camphor from the roots, except by the servants of government and by their order, as well as the wilful injuring of a cinnamon plant, were all made crimes punishable with death, both on the persons com-

mitting them, and upon every servant of government who should connive at it."

In order to keep up the price of the spices, the Dutch government was formerly accustomed to have these destroyed, when supposed to be accumulated in too large quantities. Sometimes, it was said, this oriental produce was thrown into the sea, and sometimes the work of destruction was accomplished by other means. M. Beaumarc relates that on the 10th June 1760, he beheld near the admiralty at Amsterdam a blazing pile of these aromatics, which were valued at eight millions of livres; and an equal quantity was to be burnt on the ensuing day. The air was perfumed with this incense; the essential oils, freed from their confinement, distilled over, mixing in one spicy stream, which flowed at the feet of the spectators: but no person was suffered to collect any of this, nor on pain of heavy punishment to rescue the smallest quantity of the spice from the wasting element.

When in its natural state the cinnamon-tree attains to the height of twenty or thirty feet, sending forth large spreading branches clothed with thick foliage. The leaf when first developed is partly of a bright red and partly of a pale yellow; it soon however assumes a verdant hue, and when at its full growth is on the upper surface of a dark olive colour, and on the under side of a lighter green; it somewhat resembles that of the bay, but is longer and narrower. The flowers bloom in January; they grow on footstalks, rising from the axillæ of the leaves, and the extremities of the branches, clustering in bunches, which resemble in size and shape those of the lilac, but they are white, with a brownish tinge in the centre; these are followed by one-seeded berries, of the shape of an acorn, but not so large as a common pea.

When first gathered their taste resembles that of the juniper-berry. When dry, this fruit becomes merely a thin shell, containing a kernel about the size of an apple-seed. The smell of the flowers, though not powerful, is extremely fragrant. The footstalks of the leaves have a strong flavour of cinnamon. The fruit, if boiled, yields an oil, which when cold becomes a solid substance like wax, and is formed into candles; these emit an agreeable odour, and in the kingdom of Candy are reserved for the sole use of the court.

The trees which are cultivated are kept as a sort of coppice, and numerous shoots spring apparently from the roots; these are not allowed to rise higher than ten feet. We are told that "when the trees first put forth their flame-coloured leaves and delicate blossoms, the scenery is exquisitely beautiful." In three years after planting each tree affords one shoot fit for cutting; at the fifth year from three to five shoots may be taken; but it requires the vigour of eight years' growth before it yields as many as ten branches of an inch in thickness. From the age of ten to twelve years is the period of its greatest perfection; but its duration of life is not limited, as the root spreads, and every year sends up new shoots or suckers.

Trees which grow in rocky situations, and the young shoots, when the leaves are of a reddish colour, yield the best and most pungent aromatic bark. The tree is known to be in the best state when the bark separates easily from the wood, and has the inside covered with a mucilaginous juice; but if that be not carefully removed the flavour of the spice is injured. The shoots are cut when from half to three quarters of an inch in thickness, and in lengths of from two to three feet. Many

hands are employed in this work ; each man is obliged to furnish a certain quantity of sticks. When this part of his task is fulfilled, he conveys his fragrant load to a shed allotted for the purpose, where the bark is instantly stripped from the wood and freed from the epidermis, which is scraped off. The fragrance diffused around during this process is described as being extremely delightful ; but in parts of the plantations remote from this spot, unless the trees be agitated with violence, the peculiar smell of the cinnamon cannot be distinguished. The wood, deprived of the bark, has no smell, and is used as fuel.

When the bark is perfectly cleansed it is of a pale yellow colour, and about the thickness of parchment. It is then placed on mats to dry in the sun, when it curls up, and acquires a darker tint. The smaller pieces are then put inside the larger, and the whole close together into the tubular form in which it is sold in the shops. When the rind, or part forming the cinnamon, is first taken from the tree, it is described as consisting of an outer portion which tastes like common bark, and an inner portion which is very sweet and aromatic. In the course of the drying the oil of the inner portion, on which the flavour depends, is communicated to the whole ; and the quality of the entire bark is understood to depend more upon the relative quantities of those portions of the bark than upon anything else. The cinnamon of Ceylon has the outer portion much thinner in proportion to the inner than the cassia of other countries ; and to that its higher pungency is attributed.

Under favourable circumstances, the cinnamon-tree yields a large and a small harvest every year. The large one is obtained soon after the fruit is ripe ; that is, when

the tree has again pushed out shoots, and the sap is in vigorous circulation. May and June are the best months in the year for the great harvest : in November and December the little harvest is attained. In those plantations which belong to government however, there is but one harvest, beginning in May and ending in October.

Though cinnamon has found a place in our Pharmacopœia, the purpose to which it has been applied by the South Americans, invests it with medicinal properties which it is not usually supposed to possess. " One thousand bales (92,000 lbs.) are said to be consumed annually by the slaves in the mines of South America. Each receives daily a certain quantity cut into pieces one inch in length, which he eats as a preservative against the noxious effluvia of the mines."

Oil of cinnamon was formerly obtained at Colombo from distilling the fragments broken off in packing ; latterly a great proportion has been made from coarse cinnamon unfit for exportation. A very small quantity of oil is contained in the bark ; three hundred pounds of which are required to yield twenty-four ounces of oil, and consequently this is extravagantly dear. When made from the finest cinnamon its specific gravity is greater, but from the coarse sort it is less, than that of water.

Cassia (*Laurus Cassia*) is a native of several parts of the south of Asia, but it is chiefly brought from China as an article of commerce. The bark and buds are known in commerce as cassia lignea and cassia buds ; these have the same aroma, though in an inferior degree to cinnamon, and it is said that they are in many cases very extensively substituted for the latter. They are both imported into England to a very large amount.

The Clove (*Caryophyllatus Aromaticus*) is a native of most of the Molucca islands, where it has been produced, from the earliest records, so abundantly, that in exchange for their spicy produce the inhabitants were enabled, before the intrusion of the Europeans into their country, to procure for themselves the productions which they required of almost every other region. Although Europeans have for more than two thousand years known the use of this spice, yet little more than three hundred years back they were ignorant whence it was obtained. The Persians, Arabians, and Egyptians formerly brought cloves and nutmegs to the ports in the Mediterranean, and hither the Venetians and Genoese resorted to buy the spices of India, until the Portuguese in 1511 discovered the country of their production. This nation did not however long enjoy the fruits of its discovery; the Dutch soon drove them from the Moluccas, and for a long time retained a very strict monopoly over the productions of these islands. It is said that they destroyed the clove trees growing on the other islands, and confined their culture wholly to Amboyna. They allotted to the inhabitants four thousand parcels of land, on each of which it was expected that one hundred and twenty-five trees should be cultivated; and in 1720 a law was passed, compelling the natives to make up this number: there were in consequence five hundred thousand clove trees planted in this small island; each of these on an average produced annually more than two pounds of cloves, so that the aggregate produce weighed more than a million of pounds. Subsequent to this period the policy of the Dutch somewhat relaxed, and the tree has been suffered to grow on other islands, and even to be carried to the West Indies; where however it does not appear

until very lately to have succeeded. Sir Joseph Banks introduced it into England about 1797, but of course it is raised there only as a mere ornament or curiosity of the hot-house.

The clove is a handsome tree, somewhat like the bay tree in some of its characters, though the leaves more nearly resemble those of the laurel. The flowers of the clove grow in bunches at the very extremity of the branches ; when they first appear, which is at the beginning of the rainy season, they are in the form of elongated greenish buds, from the extremity of which the corolla is expanded, which is of a delicate peach-blossom colour. When the corolla begins to fade the calyx turns yellow, and then red : the calyces, with the embryo seed, are in this stage of their growth beaten from the tree, and after being dried in the sun are what are known as the cloves of commerce. If the fruit be allowed to remain on the tree after arriving at this period, the calyx gradually swells, the seed enlarges, and the pungent properties of the clove are in great part dissipated. Each berry contains only one seed, which is oval, dark-coloured, and of a considerable size. It is a long time before a clove-tree yields any profit to the cultivator ; it rarely producing fruit till eight or nine years after being first planted.

The whole tree is highly aromatic, and the footstalks of the leaves have nearly the same pungency as the calyx of the flowers. "Clove trees," says Sir Thomas Raffles, "as an avenue to a residence are perhaps unrivalled : their noble height, the beauty of their form, the luxuriance of their foliage, and above all the spicy fragrance with which they perfume the air, produce, on driving through a long line of them, a degree of exquisite pleasure only to be enjoyed in the clear light atmosphere of

these latitudes." Cloves contain a very large proportion of essential oil, larger perhaps than any other plant or parts of a plant. This oil is extremely pungent, and is one of the few essential oils which is specifically heavier than water. It is usually procured by distillation; but when the cloves are newly gathered it may be obtained by pressure. A part is often so taken, and the cloves, which are thereby rendered of little value, are fraudulently mixed with sound ones; but the robbed cloves are easily detected by their pale colour, shrivelled appearance, and want of flavour.

The pungent and aromatic virtues of the clove reside in this essential oil, combined with the resinous matter of the spice; but it does not appear that these qualities are absolutely necessary to the growth or fructification of the tree. To give to this its greatest value, it must however be cultivated in a situation where they can be elaborated in the greatest quantity. Its profitable growth is therefore limited to a very narrow range of temperature and climate, as the clove loses its flavour if the situation be too moist or too dry, too near the sea, or too much elevated above its level. Though the tree be found in the larger islands of eastern Asia and in Cochin China, it has there little or no flavour. The Moluccas seem to be the only places where the clove comes to perfection without cultivation.

This tree is so great an absorbent of moisture, that no herbage will grow under its branches; while the cloves when gathered, if placed in a heap near a vessel of water, are found very much to have increased their weight at the end of only a few hours, in consequence of the large portion of water which they have attracted and imbibed. It is said that both the grower and

trader in cloves avail themselves of the knowledge of this fact, and since this spice is always sold by weight, thus give a fictitious value to their goods.

The Nutmeg (*Myristica Moschata*) is likewise a native of the Moluccas, and after the possession of these islands by the Dutch, was, like the clove, jealously made an object of strict monopoly. Actuated by this narrow-minded policy, the Dutch endeavoured to extirpate the nutmeg-tree from all the islands except Banda; but it is said that the wood-pigeon has often been the unintentional means of thwarting this monopolizing spirit, by conveying and dropping the fruit beyond these limits; thus disseminated, the plant has been always more widely diffused than the clove. This tree grows in several islands in the eastern ocean, in the southern part of both peninsulas of India, and it has been introduced into the Mauritius and some other places. It was for a long time supposed that, though the plant could be transplanted, the peculiar aroma of the nut, which gives to the tree its commercial value, was weakened, if not entirely lost, when this was removed from its native soil; and that, as a spice-producing tree, it as well as the clove was confined to the same narrow locality to which the clove was said to be restricted. In Sumatra, however, it has been successfully cultivated to a large extent. Sir Thomas Raffles gives an account of the plantation at Bencoolen in 1820: "Out of the number of one hundred thousand nutmeg-trees," he writes, "one fourth are in full bearing; and although their culture may be more expensive, their luxuriance and produce are considered fully equal to those of the Moluccas." An attempt has been made at Trinidad to naturalize there the

clove and the nutmeg; and very recently, samples of these spices produced in that island have been transmitted to England for the inspection and approval of the Society for the Encouragement of Arts, &c. The opinions of the best judges have been taken with respect to their quality as compared with the oriental produce, and, in consequence of a most favourable report, the gold medal of the society has been awarded to the western cultivator of these spices; while sanguine hopes are entertained that the clove and the nutmeg will one day be perfectly acclimatized in the tropical regions of the western hemisphere. The nutmeg-tree, as well as the clove, was introduced into this country by Sir Joseph Banks, as an ornamental hot-house plant.

Two spices are obtained from the nutmeg-tree,—nutmeg, which is the kernel of the fruit; and mace, which is the membranous tunic or covering immediately investing the thin black shell in which the nutmeg is contained; the whole is enveloped by the external portion of the fruit, in the same manner as the stone of a peach is by the pulp. This tree is larger than that of the clove; the leaves are more handsome in the outline, and are broader in proportion to the length. They are of a fine green on the upper surface, and gray beneath. When the trees have attained the age of about nine years they begin to bear. They are dioecious, having male or barren flowers upon one tree, and female or fertile ones upon another. The flowers of both are small, white, bell-shaped, and without any calyx; the embryo fruit appearing at the bottom of the female flower, in the form of a little reddish knob. The female flowers grow on slender peduncles two or three together, but it is rare that more than one flower in each bunch comes to ma-

turity and produces fruit ; this resembles in appearance and size a small peach, but it is rather more pointed at both ends. The outer coat is about half an inch thick when ripe, at which time it bursts at the side and discloses the spices. These are—

The mace, having the appearance of a leafy network of a fine red colour, which seems the brighter by being contrasted with the shining black of the shell that it surrounds. In general, the more brilliant its hue the better is its quality. This is laid to dry in the shade for a short space ; but if dried too much, a great part of its flavour is lost by evaporation, while it is also more apt to break in packing. On the other hand, if packed too moist, it either ferments or breeds worms. After being dried it is packed in bags and pressed together very tightly.

The nutmeg. The shell is larger and harder than that of a filbert, and could not, in the state in which it is gathered, be broken without injuring the nut. On that account the nuts are successively dried in the sun and then by fire-heat, till the kernel shrinks so much as to rattle in the shell, which is then easily broken. After this the nuts are three times soaked in sea-water and lime ; they are then laid in a heap, where they heat, and get rid of their superfluous moisture by evaporation. This process is pursued to preserve the substance and flavour of the nut, as well as to destroy its vegetative power. Dry lime is the best package for nutmegs.

There are two varieties, the royal and the green. The royal is the largest, and it produces mace longer than the nut ; on the nut of the green the mace reaches only half way down. A good nutmeg should be large, round, and heavy, of a light gray colour, and finely marbled in the cross section.

Oil of nutmegs is obtained by pressure from the broken kernels; a pound of them generally yields three ounces of oil. According to Neumann's experiments, the oil produced is one third of the weight of nutmeg: it is yellow, of the consistence of tallow, and of a pleasant smell. This is a fixed oil; but a transparent volatile oil may likewise be obtained by distillation, in the proportion of $\frac{1}{3}$ part of the weight of nutmeg used.

There are other spices, natives of the Moluccas; the principal of these are Massoy bark, and a species of cinnamon, or cassia; but these, though much used in Chinese and Japanese cookery, are of inferior consequence, and nearly confined to the commerce of the east.

Ginger (*Zingiber officinale*) is a native of the south-east of Asia and the adjacent isles. It was naturalized in America very soon after the discovery of that country by the Spaniards: indeed, at so early a period that it is scarcely believed to be an exotic, and is supposed to have been found indigenous in the western world. Acosta relates that a person named Francisco de Mendoza first transplanted it from the East Indies into New Spain, where its cultivation was diligently pursued by the Spanish Americans to no small extent, as from the testimony of the same author, 22,053 cwts. were exported thence to Europe in the year 1547.

The plant is now cultivated in great quantities in the West Indies, especially in the island of Jamaica. Ginger is imported into England under the form of dried roots, and as a preserve. We receive it both from the East and West Indies, but that from the latter is much superior in quality to the former. British plantation ginger pays eleven shillings per cwt. import duty, and

all other is not admitted under fifty-three shillings per cwt. These two causes unite in confining the home consumption of ginger almost entirely to that coming from the West Indies.

The ginger plant has been cultivated in England as a stove exotic since about the year 1600. It has a perennial root, which creeps and increases under ground in tuberous joints, from each of which arises in the spring a green reed, like a stalk, of about two feet and a half in height, having narrow and lanceolate leaves. The stem is annual; the flowering stalk rises directly from the root, ending in an oblong scaly spike; from each of these scales a single white and blue flower is produced. The ginger of commerce is distinguished into black and white; but the difference of colour depends wholly on the modes of preparation. For both of these kinds the tubers are allowed to be ripe, that is, the roots are taken up after the annual stalks are withered. For the black they are scalded in boiling water and then dried in the sun; and for the white they are scraped clean and dried carefully without being scalded. The best and soundest roots are selected for the latter process, and therefore the white ginger is, independent of the manner of preparation, superior to the black, and it always bears a much higher price in the market. When a preserve is to be made of the roots, they are dug up in the sap, the stalks not being then more than five or six inches long. For this purpose the young roots are scalded, then washed in cold water, and afterwards carefully peeled. This process lasts for three or four days, during which period the water is frequently changed.

When the cleansing is complete, the tubers are put into jars, and covered with weak syrup of sugar. After

a day or two the weak syrup is removed, and replaced by a stronger; and the shifting is two or three times repeated, increasing the strength of the syrup each time. The preservethus formed is one of the finest that is made: and the removed syrups are not lost, but fermented into a pleasant liquor which gets the name of "cool drink."

The manner of cultivating ginger is extremely simple, requiring little skill or care: it is propagated with as much ease and nearly in the same manner as potatoes are in Great Britain.

Pepper (Piper.) The species of this genus are very numerous: botanists describing about sixty, some of which are to be found in every quarter of the world except Europe. The *Piper Nigrum* produces the black and white pepper of commerce. This pepper-bush is a perennial plant found native upon the slopes of mountains in the southern parts of both the Indian peninsulas, especially on the coast of Malabar. It is likewise cultivated to a great extent in Sumatra, Java, and the adjacent places. Pepper at one time formed the principal export from Java: it was chiefly cultivated in Bantam, and likewise in the dependencies of that province in the southern part of Sumatra; these districts producing the greater part of the supply exclusively furnished by the Dutch to the European market. It is however a satisfaction to find that the greedy spirit which would appropriate all to self may sometimes, in its unjust efforts to secure this end, defeat its own purpose. We learn from Sir T. S. Raffles, that the "system by which it (pepper) was procured was too oppressive and unprincipled in its nature, and too impolitic in its provisions, to admit of long duration. It was calculated to destroy the energies of

the country, and with them the source whence the fruits of the monopoly proceeded. In the year 1811, accordingly, neither Bantam nor its dependencies furnished the European government with a single pound of this article."

The system of raising pepper in Java is now, however, completely changed: there is no longer a monopoly, and the cultivation of pepper has for the last few years been declared free.

This plant was introduced some time back at Cayenne, by General Bernard, who has with unceasing perseverance attended to its cultivation in that settlement, in the hope of making the French independent of foreign supply for its produce. It is said that he has already formed a plantation of more than thirty thousand pepper trees on his estate.

The pepper-plant, or pepper-vine as it is sometimes called, is a creeping or climbing plant, with a dark-coloured stem which requires support. When dry it exactly resembles the grape-vine branch, having the same sort of knots or joints. It is usual to plant a thorny tree by the side of this plant, to which it may cling. In Malabar, the chief pepper country of India, the jacc tree (*Artocarpus integrifolia*) is made thus to yield its support, because the same soil is well adapted to the growth of both plants.

The stem of the pepper-plant entwines round its support to a considerable height; the flexible branches droop downwards, bearing at their extremities, as we do at other parts, spikes of green flowers; these are followed by the pungent berries, which hang in large bunches resembling in shape those of grapes, but the fruit grows distinct on little stalks like currants. Ea

berry contains a single seed, which is of globular form and brownish colour, but changes to nearly a black when dried ; this is the pepper of commerce. The leaves somewhat resemble those of the ivy, but they are larger, and of rather a lighter colour ; they partake strongly of the peculiar smell and pungent taste of the berry.

The plant is propagated by shoots, which do not produce fruit the first three years ; the fourth year they come into bearing, and yield an increase of produce annually until the eighth year of their growth ; they then gradually decline, and rarely bear for more than two or three years longer. When in full vigour, the pepper-plant is very prolific ; each bunch usually contains from twenty to thirty berries, and sometimes as much as six or seven pounds of pepper are obtained from one tree. The time of the pepper harvest on the western coast of Sumatra is usually about September and October, and sometimes another smaller crop is gathered in March and April. The pepper plantations on this island are described as being most carefully cultivated ; not a weed is to be seen, every species of tetter is removed, and if the season be dry the plants are watered with unremitting assiduity.

The black and white sorts of pepper are both the produce of the same plant : the best white peppers are supposed to be the finest berries, which drop from the tree, and lying under it become somewhat blanched by exposure to weather ; these the poor people pick up and bring to the merchants ; they are however obtained in very small quantities, and are on that account, as well as for their superior quality, sold much dearer than the gathered pepper. The greater part of the white pepper used as a condiment is however the black, merely steeped in water and decorticated, by which means the pun-

gency and real value of the pepper are diminished ; but in this state it can be more readily reduced to powder, and when thus prepared it has a fairer and more uniform appearance.

The pepper is distinguished in Sumatra into three sorts : the Molucca, which is the best ; the second, cantongee ; and the worst sort, negaree, which last is the most abundant ; this is a small pepper usually full of dust ; it is much lighter than the others, and therefore, unless the buyer be wise enough to purchase his pepper by weight instead of measure, he will assuredly be imposed upon, and have this substituted for the heavy Molucca berry.

By distillation a green-coloured matter is obtained from pepper ; this is partly resinous and partly oily, and to this the pepper owes its pungent quality.

Several other species of this genus are used besides the *piper nigrum*. The southern Asiatics wrap up the slices of the areca nut, which they are in the habit of chewing, in the leaves of the beetla codi (*piper betel*), which is a native of India and China : some species are likewise found in the West Indies and in South America ; they are used there to season food, but are not at present known in commerce.

Cayenne pepper is the pod of a species of *capsicum* dried and reduced to powder. There are many species of this genus, some of which have been already described in a former section. They differ from each other in bearing fruit of various size, shape, and colour ; but they all have in different degrees the same pungent qualities ; the smallest possessing them with the greatest intensity. They are natives of most of the tropical regions, but are most abundant and most used in the western hemi-

sphere. In the West Indies, and in some parts of South America, they form, either in substance or in powder, an ingredient to almost every dish.

Pimento, Jamaica Pepper, or Allspice tree, (*Myrtus Pimenta*,) is an extremely handsome tree, native of South America and the West Indies, especially of the island of Jamaica, whence the berries of pimento of commerce are exported in large quantities. This tree grows to the height of about thirty feet, with a smooth brown trunk, and shining green leaves resembling those of the bay; branches coming out on all sides are clothed in the most luxuriant foliage. In the months of July and August a profusion of white flowers pleasingly contrasts with the dark green leaves; the whole forming an object of vegetable beauty rarely surpassed; while the rich perfume which is exhaled around, and which is wafted by the gentlest breeze, renders an assemblage of these trees one of the most delicious plantations of even a tropical clime. When the leaves are bruised, they emit a fine aromatic odour as powerful as that of the fruit; indeed it is said that they yield by distillation a delicate oil, which is often used in the dispensaries as a substitute for oil of cloves.

The pimento tree grows spontaneously in many parts of Jamaica: it abounds more particularly on the northern side of that island, in elevated spots near the coast. When a new planting or sowing takes place, it is usual to appropriate a piece of land, either in the neighbourhood of a plantation already formed, or in a part of the woodlands where these trees are scattered in a native state. The land is then cleared of all wood but these trees, which are left standing, and the felled timber is allowed to remain where it falls, to decay and

perish. In the course of a year young pimento plants are found springing up on all parts of the land, produced, it is supposed, in consequence of the ripe berries having been scattered there by the birds, while the prostrate trees protect and shade the tender seedlings. At the end of two years the land is thoroughly cleared, only those plants being left which promise a vigorous growth; these come to maturity in about seven years from the first formation of the plantation, and usually attain to the height of thirty feet. But though apparently of so easy propagation, it is only in those parts where the tree is a spontaneous production. Edwards observes, that "this tree is purely à child of nature, and seems to mock all the labours of man in his endeavours to extend or improve its growth; not one attempt in fifty to propagate the young plants, or to raise them from the seeds, in parts of the country where it is not found growing spontaneously, having succeeded." The tree was introduced into England in the early part of the last century, but the fruit does not ripen. It is delicate and difficult to manage, requiring at the same time warmth and a great deal of air.

The flowers scarcely fade and give place to the berries, ere these are fit for gathering, since, if the fruit be suffered to ripen on the tree, it loses its pungency and becomes valueless. While yet green, therefore, the berries are carefully picked by hand; one person on the tree gathers the small branches; and three others, usually women and children, find full employment in picking the berries from these. The produce is then spread on terraced floors, and exposed to the action of the solar heat for about a week; in the course of this time the berries lose their green hue, and become of a reddish

brown. When perfectly dry, they are in a fit state for exportation.

‘ ‘ In a favourable season the pimento crop is enormous. “A single tree has been known to yield one hundred and fifty pounds of the raw fruit, or one hundred of the dried spice ; there being commonly a loss in weight of about one third in curing.” This return is not however of very usual occurrence, as the produce is variable ; a very plenteous harvest seldom occurring above once in five years. Pimento combines the flavour and properties of many of the oriental spices, hence its popular name (all-spice).

